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LECTURES
ON
COMPARATIVE ANATOMY
AND
ANIMAL PHYSIOLOGY,

DELIVERED BY

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LECTURE XXVII.

ON THE OSTEOLOGY OF INSECTIVORA AND CHEIROPTERA.

ALTHOUGH the mammalia are for the most part organized to stalk like man on the dry surface of this earth, and to enjoy the spectacle it presents, we find every element peopled with the species of this class. The summits of lofty trees are the abode of myriads of active quadrumana and squirrels which gambol among the branches, and of sloths, opossums, and other climbing quadrupeds. The bats and petauri flit like shadows through the air, and the ponderous pachyderma and ruminantia carry their heavy carcasses over the surface of the ground. The gigantic cetacea pass and repass, moving with the velocity of meteors beneath the still surface of the sea; and fierce sea-lions twenty feet in length, huge *otariæ*, seals, and walruses, scour the deep dark valleys of the ocean, seeking what living creatures they may devour. The dunnest caverns in the sea and on the land are peopled with mammiferous inhabitants, and the solid earth we tread upon swarms with burrowing quadrupeds, moving to and fro in their meandering passages, like worms in their holes. The food of animals determines not only the forms of their prehensile, their masticating, and their digestive apparatus, but also those of their locomotive organs, their organs of the senses, and more or less of their whole internal economy, their living habits and instincts, and their physical and geographical distribution. Insects are the most abundant and the most diversified of all animal forms organized to breathe atmospheric air; they attack all forms of organized matter, they swarm in the atmosphere and in the depths of the earth, they cleave the waters, like fishes, with their wings, and they pierce through the bodies of animals and plants. They are the prey of almost all classes of animals, from the lowest radiata to man. We have seen in the feathered tribes, animals whose skeletons and all other part are admirably constructed for pursuing through the air, for seizing and for digesting, insects; that many of them have their bills organized and formed in such a manner as to be capable of being insinuated into the crevices in the decayed bark of trees. Others have the bill formed for being thrust under water, among stones, or into mud, and are gifted with a high degree of sensibility around its margin, so as to distinguish by touch insect-food where they could not perceive it with their eyes. Quadrupeds also without number are organized for that kind of food; and we find that some, provided with wings, can pursue winged insects through the air; such are the bats. Others, as the lemurs, the opossums, the petauri, seize the insects that alight upon the trees; others, as the edentulous ant-eaters and echidna, consume those which move on the surface of the ground; others pursue them through the waters or the mud, as the ornithorhyncus; and others devour the maggots and the beetles which swarm under ground throughout the soft soil of all continents and islands. We find often in groups of quadrupeds, that although their essential structure remains nearly the same, those more trivial parts by which they are enabled to seize or to pursue their peculiar kind of food, have assumed different forms

the best adapted for the purposes of each; so that in the bat's wings, and in the digging paws of the mole, we might expect, from the constancy we have seen in the composition of similar parts throughout extensive groups of animals, that we should have the same elements as in the human arm; for we have seen that even the fish's arm, the pectoral fin, presents the essential elements of the human arm. So have we seen, to a great degree, the sameness of our structure repeated in the wings of the bird, in the hand of the pterodactylus, and in the swimming fins of the cetacea.

Those small quadrupeds with broad-crowned molares and sharp tubercles, that feed upon insects, and which have not the arms formed like wings for pursuing them through the air like the bats, have been grouped together into a small order termed, for the sake of distinguishing them from other allied groups, *insectivorous* quadrupeds. This order comprehends the shrews, the moles, the hedgehogs, and a few similar quadrupeds. Those animals feed generally upon that mixed kind of food which we see so common in insectivorous animals belonging to other orders. For an animal which feeds ordinarily upon beetles will also break seeds, nuts, bird's eggs, and other substances, by the same instruments that it employs to break the hard exterior of the coleopterous insects; and we find that they feed indiscriminately upon those various kinds of food. There is considerable diversity in the general structure, and in the living habits, of insectivorous quadrupeds, some burrowing in the ground for food and safety, and others we find employing their arms for tearing off the bark or decayed coverings of trees, where we see myriads of all kinds of articulated animals, insects, arachnida, and myriapods, which swarm together, and where they enjoy darkness and food.

This use of the hands requires an extensive motion in the arms, and at the same time great security in the articulation of the shoulder-joint. On that account we find the clavicle large, strong, and ossified throughout, in all the animals of this order. It is obvious that from this use of the anterior extremities they must to a certain extent have the power of pronation and supination given to the fore arms and hands. You will observe, therefore, that in the insectivorous animals before you, the radius and the ulna remain distinct and separate throughout their whole length, although the tibia and fibula on the posterior extremities have anchylosed throughout the greater part of their extent, and admit of no motion between them, these being only firm organs of support during the action of the fore-arms and hands.

The parts which are most intimately connected with the kind of food are here —as we have seen throughout the other forms of the hard parts—the teeth, and the osseous parts which form the parietes of the mouth. Insectivorous animals, many of which we have already seen in other orders, though not possessing the characters of the present group, have generally a lengthened muzzle, as you see in these shrews and moles. You have seen that already in ant-eaters, in the armadillos, and in most of the edentulous quadrupeds. You have seen it in the echidna and in the ornythorhincus. You observe it again in these bats, and in the makis, as well as in these moles, and hedgehogs, and shrews.

The skeleton of the hedgehog indicates in all its parts an admirable adaptation for seizing this kind of food, not in the interior but upon the surface of the ground. It has the feet long and flexible, not short and powerful as in the mole, which must use them for excavating with great rapidity extensive winding burrows under ground.

Fig. 111

The head of the hedgehog presents so far the appearance of a carnivorous quadruped, in having the orbits and the temporal fossæ perfectly continuous, forming one great passage, bounded externally by the zygomatic arch. The zygomatic arch in insectivora is very feeble, and almost on the same longitudinal plane, as you see in these skeletons. In this animal, as in all burrowing quadrupeds, the eyes are comparatively small, and the orbits occupy but a small, and sometimes imperceptible space. A larger portion of the temporal fossæ you here see, therefore, appropriated for the passage of the temporal muscles. Still you observe that the slender zygomatic arch in the hedgehog is very slightly arched upwards, a character which we saw greatest in all the feline quadrupeds, where the arch was very strong, wide, and convex above. In some of the feebler arches, as in that of the mole, we find it to be almost horizontal; and in some of the rodentia we found it to

be convex downwards, a still feebler direction.

On the anterior part of the skull of the hedgehog, you observe a vacant space between the two intermaxillary bones. There come thence two large prominent teeth (*Fig.* 111, *a*). Those teeth somewhat resemble in their lateral position, and in their long conical form and appearance, the canine teeth which we have seen so large in carnivorous quadrupeds. We perceive here then, from the magnitude of those teeth, which are true incisors, and the smallness of the incisor teeth that immediately succeed them, that the magnitude or smallness of the teeth has nothing to do with their true anatomical and zoological characters. You observe that those two large teeth of the hedgehog in the fore part of the mouth are distinctly inserted into the intermaxillary bones, and not into the jaw-bone. That they have behind them two very small teeth, which are also incisors, on each side; so that there are six incisors above in the hedgehog. The teeth which succeed, come very near to the last of the incisors, and are the first in the upper jaw; those therefore are canine teeth (*Fig.* 111, *b*); and you perceive that they have not nearly half the length or the magnitude of the front pair of incisor teeth. The molar teeth here present fine examples of those broad tuberculated crowns, studded with sharp points, which are so characteristic of insectivorous quadrupeds. We have here, both in the upper and lower jaws, broad square crowns of the molar teeth, with numerous pointed tubercles arranged in two longitudinal rows. The whole of those crowns are covered, with a thick, dense, and continuous layer of enamel. This is the case with the teeth of the cheiropterous animals, with those of the quadrumanous animals, and with the molar teeth of man; we have seen it to be the case also with the molar teeth of carnivorous quadrupeds, so that this continuous coating of enamel is common to the molar teeth of all the higher orders of quadrupeds. In the lower jaw the front pair of incisors are approximated, and project like long tusks, as in the upper jaw; there are here also two other small incisors behind each, so that there are the same number below as above. The lower canine teeth are nearly the smallest teeth in the head of this animal.

There is considerable motion in every direction in the lower jaw; its condyle is flat, extended transversely, and plays over a flat articular surface of the temporal bone. The malar bone is here remarkable for its smallness, and for its forming only a very small part of the middle of the zygomatic arch; its usual place is occupied by a large malar process of the superior jaw-bone. The intermaxillaries extend high upon the face. The nasal bones—very narrow, long, slender bones—extend upwards between the frontals, which are here separate. The parietal bones are also generally separated by a sagittal suture, and encompass a large and smooth cranial cavity, at the anterior part of which are two large fossæ, terminated by the large cribriform plates of the ethmoid bone, for the olfactory nerves. The turbinated portion of the ethmoid, and the two turbinated bones, here present a very extensive surface for the organ of smell in these small-eyed nocturnal animals. The coronoid process of the lower jaw is very large and high, and the ramus of the jaw arches upwards and inwards behind the condyle. The infra-orbitary foramen is large and compressed, and the lachrymal groove perforates the outer margin of the lachrymal bones, exterior to the orbits. The transverse ridge of the occipital is elevated and sharp, and the longitudinal ridge generally well marked. The extensive articular surfaces of the occipital condyles, allow of very extensive motion between the head and the atlas, and the magnitude of the occipital foramen, and of the foramina of the cervical vertebræ, allows of free motion in this region in all these digging animals. The large spinous process of the axis arches backwards over the two succeeding cervical vertebræ, and the transverse processes of the sixth cervical vertebra are lengthened and expanded like those of a crocodile or a gavial.

In the posterior part of the skeleton of the hedgehog you observe there is a considerable mobility in the vertebral column. That is indicated by the small development of the spinous processes throughout the whole region of the trunk, and the small development of the transverse processes also in the lumbar region.

The hedgehog is one of those animals which are covered externally with a strong means of defence in the form of highly-developed hairs, forming large, stiff, sharp spines. We have already seen that exterior integument assume various forms in other orders and classes. We have seen it in a highly developed state in birds, where the hair is metamorphosed into feathers for progressive motion, in consequence of the extent of superficial respiration in that class. We see it metamorphosed into quills of a large form in the porcupines, and scales in the manis. Here it is in the form of spines or bristles, for defence and concealment. Where you find that kind of covering spread over the

surface of the body, it is generally confined to the dorsal region, and the lower part of the body is usually free from these denser parts, and covered with hair, as you see in the echidna, the manis, the hedgehogs, in the porcupines, and also in the armadillo. Now these animals can generally coil the body in such a way as to protect the head and extremities, and to form the trunk into a ball, by means of the *panículus carnosus*, which is remarkably developed immediately beneath the skin, as you see in the hedgehog before you; the head and neck, the anterior and posterior extremities, and the tail, can all be coiled up and retracted within the general covering of the spines which extend over the back. When the trunk is thus bent forwards, and coiled into a ball, the spring covering is actually drawn together, like a purse, by the sphincter portion of the paniculus carnosus, and thus the whole body is covered by erect, firm, pointed spines. That requires at once considerable mobility and security in the articulations of the vertebral column, and hence the extent of the lumbar region, and hence also the length of the articular processes of all the vertebræ. The action of digging and scraping also requires that the anterior extremities should be powerful; that there should be great security in all the articulations, together with considerable extent of motion. Little motion, comparatively, is required even in burrowing quadrupeds in the posterior extremities, as they are only organs of support, the detached earth being carried backwards by the broad hands. It is thus, therefore, that you observe in the insectivora, as we have already seen in many of the feeble burrowing rodentia, greater mobility in the articulations of the anterior than of the posterior extremities. The scapula is long and narrow, with a deep crest, which extends in an arched form over the head of the humerus, and secures that articulation, and terminates anteriorly in a large acromion, for the attachment of the long and strong clavicle. The ulna, separate throughout from the slender radius, is a strong compressed bone, with a large projecting olecranon. The whole hands are stronger and more expanded than the long slender feet. There are five toes before, as behind, terminated by powerful claws for scraping and digging. The pelvis is large, wide, and strong, with a sacro-iliac articulation extending longitudinally over the transverse processes of three sacral vertebræ, and behind this articulation at some distance lies the cotyloid cavity. The *foramen obturatorium* is of great size, and the pubic bones form a wide and regular arch in bending forwards to join at the symphysis. The femur is remarkably compressed throughout its whole extent. The slender fibula is anchylosed to the strong compressed tibia, for more than half its extent, and is widely separated from the tibia at its upper end, so that there is a very strong and secure articulation between the expanded lower end of the tibia and the astragalus. Here, as in others of this order, the calcaneum projects very little backwards behind the lower end of the tibia. The claws on all the extremities of these insectivorous quadrupeds are large and strong, rapidly worn down by constant abrasion, and rapidly renewed by growth. They are plantigrade, like the bears and badgers, and some other carnivora. The hedgehogs, living on the surface of the ground, are exposed to changes of temperature, and to periodical privations of food, to which the moles under ground are not exposed, the hedgehogs therefore are liable to hybernate in our latitudes, and the moles are in constant activity.

Many of the characters presented by the skeleton of the hedgehog, we see repeated in this small skeleton of the shrew, with the head lengthened and tapering like that of the mole, and with the front incisors above and below larger than those behind, as in the hedgehog. The coronoid process of the lower jaw rises to a remarkable height, and the long posterior slender process of the ramus extends backwards under the temporal bone. The infra-orbitary foramen is of great size; and the inferior front incisors are lengthened, like those of a kangaroo, and studded with a range of tubercles, like molar teeth. The scapulæ are long and narrow, and the clavicles long and strong; the pelvis longitudinal; the humerus and the femur short, and the bones of the fore arm and leg long, and developed as in the hedgehog and the mole. The *cladobates*, the *mygale*, the *condylura*, the *scalops*, and that beautiful little African animal the *chrysochloris*, with the fur shining like the plumage of a humming bird, have, like the shrew and the hedgehog, the anterior incisors larger than the canine teeth. The cladobates of Java, with the long muzzle and the furry tail of a fox, and the plantigrade character and long feet of a mole or hedgehog, climbs nimbly on trees, like a squirrel or a quadrumanous animal, in pursuit of its insect prey. The long, compressed, scaly-tailed musk-rat of Russia, with webbed feet and prolonged tubular nostrils, burrows on the banks of rivers, and seeks its prey among the mud. The chrysochloris has the olecranon of the ulna detached, like a patella, as we see it in some bats, with enormous

claws on the fingers, to assist it in digging its subterranean avenues.

In the skeleton of the mole we see in every part the structure, the proportions and the forms of the bones well adapted for its digging and burrowing habits. The surface of the animal is covered with very short soft compact fur, which presents as little impediment to its digging as the scales of an armadillo or a manis. Its respiratory organs are large, its muscular energy great, and its bones are strong, dense, and compact, as in carnivorous quadrupeds. The skeleton is formed like a cone, with the base, which is the digging part, directed forward, and tapering to the posterior part. So that in looking at the entire skeleton we perceive that the anterior half is remarkably developed, compared with the posterior half; that while the pelvic region is remarkably narrow, small, lengthened, and imperfect in its development, the region of the thorax, the scapulæ, the sternum, the clavicles, and the humeral bones, are remarkable for their strength, their solidity, and their magnitude. The legs and the feet are disproportionately small, but the hands and the arms are remarkable for their size and power. The region of the thorax, encompassed by the ribs and the sternum, is also of great breadth, embracing obviously a large respiratory organ.

The long tapering form of the head in the mole, corresponds with that which we have seen in most of the digging insectivorous animals, whether of this or other orders. This lengthened form in the mole depends greatly on the development of the bones of the cranium, and partly also on those of the face. The orbits, if present, are continuous here with the temporal fossæ; for, in fact, the very minute eyes of the mole, like two black points, are not lodged in orbits, but are confined almost to a contiguity with the surface of the skin. The parietal bones, here separate, are remarkable for their extended length, extending forwards, presenting the lengthened form of the contained hemispheres of the brain tapering forwards. The temporal bones and their zygomatic process are comparatively very small. The occipital bone is very smooth on its dorsal aspect, and extends in an expanded arched form over a great part of the cranium. From the extension forwards of the parietal and frontal bones over the fore part of the head, the nasal and intermaxillary bones occupy but a small space. The zygomatic arch is remarkably slender, and almost on the same longitudinal plane. The coronoid process of the lower jaw rises very high through that arch, and the angle of the jaw is prolonged backwards and a little inwards over the mastoid portion of the temporal bone. The fore part of the septum of the nose is ossified in the mole, so as to form a distinct small bone in that situation to support the nose in digging, as we saw in the strong digging nose of the hog. The whole parietes of the skull are thin, smooth, and diaphanous, as in the echidna and the ant-eaters, and the sutures are distinct.

The molar teeth of the mole, placed in these lengthened jaws, have the same broad tuberculated crowns, studded with sharp elevated tubercles, which we find generally disposed in insectivorous quadrupeds in two longitudinal rows, an inner and an outer; so that the insects put between those rows of sharp points are more easily held in that position and bruised, and the softer matters are thus extracted from the interior. The indigestible hard exterior parts which are swallowed with the others, pass with little change through the alimentary canal in insectivorous quadrupeds. And you find sometimes that the colon contains large quantities of the rings and elytra and other parts of insects, but little changed by the secretions of the intestines, while the other soft interior parts of the structure have been dissolved away by the fluids which assist in digestion.

Naturalists divide this insectivorous order into two little families, distinguished by having in the one the front incisor teeth larger than the canine teeth, and in the other the canine teeth larger than the incisors. Thus you see, in the mole and the *centenes*, that the canine teeth have the ordinary prominent conical form, and are of great size compared with the intervening incisors, which exist in carnivorous quadrupeds, presenting proportions the reverse of what we saw in the former group.

In the cervical vertebræ of the mole we observe that the axis has its spinous process greatly developed upwards and backwards, and of great strength, showing the power of the muscles attached to that process, and passing from it to the occipital bone. The remaining cervical vertebræ are behind, like so many loose rings, shorn of their spinous and transverse processes, to allow of the freest motion with safety to the spinal chord. On the anterior part of the chest, which is surrounded with almost cylindrical slender highly-curved ribs, extending outwards so far as to encompass a large thoracic cavity, corresponding with the great respiratory organs and the consequent great vigour of the muscular system, you perceive that the sternum has a very unusual lengthened and compressed form. Cylin-

drical and narrow at its posterior part, as is common in other quadrupeds, it passes far forwards before the termination of the first pair of ribs, and the part which is thus thrust so far forwards is compressed and elevated like that of a bird. It presents the prominent carinated form which is so characteristic of the sternum of the winged and feathered tribes. The sternum (*Fig.* 112, *d*) is here thrust forwards so far, that the anterior extremities, which are fixed by a very short and strong clavicle to the sides of the anterior termination of the sternum, are fixed in a position which they would be thrown into in an animal which was destitute of a clavicle, or had a long clavicle, and which used a violent effort to bring forward the shoulder as far as the scapulæ and the clavicles would allow. That is the best position for them to be fixed in in the mole, in order to give force to the motions of the arms backwards. Thus the scapulæ and the humeri, and the whole anterior extremities, have great freedom of motion; from being thrust so far forwards from the ribs themselves, they are actually fixed by this lengthened sternum so much anterior to the region of the thorax, that the clavicles and humeri are under the atlas. We observe that the clavicles in the mole (*Fig.* 112, *c*) are remarkable for their thickness and

Fig. 112

shortness, so that they have the appearance of small cubical bones insinuated between the scapulæ and the sternum. The scapulæ (*Fig.* 112, *b*) on the contrary have a long and almost cylindrical form at their proximal extremities; and as they extend backwards, they assume in a very slight degree that expanded form which is common to the scapulæ of mammalia, with a small crest or spine on its dilated posterior portion.

The lengthened muscles attached to these scapulæ give great velocity to the movements of the parts upon which they act—the proximal end of the short compressed humerus. The humerus (*Fig.* 112, *a*) itself has a remarkably short, irregular, grooved, and compressed form, nearly as broad at its extremities as its whole length. It is very short and strong, presenting an extensive surface at both its dilated extremities, for the attachment of the muscles, those muscles possessing here great power, by the increased number of their fibres, but losing in velocity by the shortening of the bones of the whole arms and hands, and by being inserted at a greater distance from the centre of motion. The olecranon of the ulna projects remarkably backwards in an expanded form, giving thus a prodigious increase of power to the muscles which act upon that point in the motions of the fore arm. The radius and the ulna being fixed in a state of pronation, the strong digging hands can be moved with force and facility forwards and backwards. The bones of the carpus, of the metacarpus, and the phalanges of the fingers, are all short and strong bones, with broad and secure articulations; and the last phalanges only, which are deeply grooved, and support the long claws, have great length, and pass to a great distance, through the strong claws, to give them greater strength and support for digging.

The ungual bones of the hands—the bones which are covered with the long, broad, flat and almost straight claws, are of great size in this animal, and have a depressed form. You will observe generally, deeply grooved, and almost divided at their distal extremity, the terminal phalanges of the fingers. They are partially cleft at their distal extremity, by which greater elasticity as well as strength is given to the claws. That slight degree of elasticity is advantageous where the hand has much resistance to overcome, as it would otherwise be more liable to break the claws, than if they were supported by solid and lengthened bones. The terminal phalanges in this skeleton, from which some of the claws have been removed, show the divided form of the last phalanges. One of the bones of the carpus is lengthened and curved forwards, so as to increase and extend the inner surface of this digging instrument.

The most remarkable part of the skeleton of the mole is probably the pelvis. (Fig. 113.) We observe here somewhat the lengthened narrow form, and the appearance, of the pelvis of a bird, especially in the anchylosis of the sacrum to the iliac bones, the iliac bones to the ischium, and the ischium to the pubic bones; but the pubic bones you observe do not meet in front, to form the usual closed symphysis. The skeleton I now hold in my hand is wider than they generally are. The skeleton I next show you has the more natural appearance; here they are

Fig. 113.

separated to the distance of half a line. The widest or transverse diameter of the adult pelvis is about two lines. The pubic bones have a wide symphysis, where they are united by a loose, soft, cartilaginous substance. The two ischia, with a very long *foramen obturatorium*, as in birds, project considerably behind, and diverge at their tuberosities. The sacral vertebræ are anchylosed together, and present a continuous elevated spine along their dorsum, but the lumbar vertebræ admit of great freedom of motion in that region.

It is obvious upon looking at this pelvis of the mole, and in attempting to pass the point of a pencil through it, that it will not admit any object half a line in diameter to pass through its anterior aperture. Now we are speaking of a viviparous quadruped, and not of an oviparous bird or reptile, which must expel the ovum to be developed exterior to the body; we are speaking of an animal which matures the young by a placenta in the uterus, and which must pass them down from the uterus with the form of the parent, and in a condition fit to provide for themselves, through the ordinary passages, so far as the soft parts are concerned in the discharge of the fœtus.

Nature had here an interesting and difficult problem to solve. To have given this quadruped a pelvis capable of admitting a matured fœtus to pass through its cavity, would have been to separate the two condyloid cavities to a much greater distance than they have at present—to have separated the two trochanters, and the whole posterior extremities to a greater distance from each other—in short, to have greatly enlarged the posterior part of the trunk,—that part which is to be dragged through the loose earth which the anterior extremities, continually digging, have thrown back upon the trunk. The structure most advantageous for a burrowing animal of this kind would be a cone, with its base placed anteriorly, and the mole has that form given to it by the position and the direction of its arms and hands. The base of the cone is anterior, the arms and the large digging hands—thrown out from the sides of the body by the extension outwards of the humeri and elbows at right angles to the trunk—forming this digging base of the cone, and the tapering pelvis forming the apex.

It was necessary to check the development of this posterior part. Nature has effectually done this by forming a pelvis which will scarcely permit a pin to pass through it. So that we have got here all the normal characters of a pelvis, without the functions, for we have here, as in other corresponding regions, the sacrum, the ilium, the ischium, and the pubes.

Neither the organs of generation, nor the termination of the intestine, nor the urinary organs, pass through this imperfect pelvis, but they terminate in front of it. Thus the region of the pelvis in the mole serves a most important purpose for giving great security, by the anchylosis of all its bones, to the attachment of the legs; but it serves not the ordinary purpose of giving support to the passages for the products of generation, and the residue of digestion. By this shrinking of the dimensions of the pelvis, the advantage is gained of bringing the heads of the two femora as nearly as possible to the median plane. The nearer they can approach the median plane, the more they reduce the dimensions of that region, and they can be the more easily drawn through the narrow passages in which the mole is burrowing. The whole posterior extremities are here very small, and their bones more slender than in the arms. There is a compressed femur, and the patella is almost cylindrical, the tibia and fibula are anchylosed to such an extent together, that the fibula is only a small process at the upper part of the tibia, and both these bones have long hook-like processes at their proximal ends. The feet, which are long and narrow, are like those of most digging and burrowing animals, employed as organs to support the trunk during the various active motions of the fore feet, and they are therefore less perfectly developed than the hands. They are here too slender to give much assistance in excavating the solid earth, which these animals perform with extraordinary rapidity in the densest soils. Thus we see by the instruments and the structure given to these insectivorous quadrupeds, that the vermin buried in the earth, and consuming in apparent safety the tender roots of the young and growing plants, have skilful and strong antagonists in this highest class of vertebrata, and that they are not more safe to commit their devastations in the dark recesses of the earth than the gaudy butterflies which suck the secretions from the expanded flowers at noon-day.

The *cheiroptera* are, for the most part, like the *insectivora*, nocturnal in their habits. They are the companions of the owls and the moths in their nocturnal depredations, and like them they are organized with soft wings to glide, like shadows through the still night air, and pounce unheard and unseen upon their victims. The bats are insectivorous mammalia, with the arms formed like wings, and, flying through the air like birds, their

skeleton presents some characters of affinity with that class, in the parts connected with progressive motion. Like other insectivorous animals they devour the eggs and the young of birds, and the smaller quadrupeds and birds, fruits, insects, and worms. They seek not, like the former order, their food on the earth, but they pursue the insects through the air, and seize them while upon the wing, as they take the fruits from the trees, and not after they have fallen. They seize the young birds while upon the wing, or in their nests on the summits of trees, or cliffs, or buildings. They take the eggs of birds as well as the fruits of trees, so that they have the same mixed kind of food as the insectivorous quadrupeds without wings.

Thus we find that nature has not given to any animals, whether in the air, or in the waters, or in the earth, a means of perfect security. The insects are not safer, flying aloft through the thin air even by night, than they would be were they concealed under the solid ground; nor are they safer under ground than they would be perched upon the trees, or buried in recesses under the bark, or concealed under the fur of quadrupeds. Nature has everywhere provided animals to find them out, to pursue them through all their windings and recesses, and organized them to feed only upon such kind of food. The *cæcum-coli* is almost always much more developed than we ever find it in the *insectivora*. We see the necessity for the consumption of those innumerable hoards of insects that prey so extensively, both upon the vegetable and animal worlds. When the produce which the husbandman expects as the reward of his industry is beginning to rise above the ground, when the germinating grains are shooting down their tender radicles and roots in quest of nourishment into the earth, those sources of nutrition, growth, and life, are nipped and consumed by myriads of larvæ, which are carefully deposited underground for that purpose by the parent insects, and unless there were animals like the moles and other insectivorous quadrupeds constructed for perforating through all the interior of the soil, and feeding upon those destructive insects and worms, it would be difficult to conceive a means by which the grain so necessary for the maintenance of man, and of the animals the most necessary and useful to man, could be protected and matured. Many animals besides quadrupeds, we find, busied in consuming those noxious vermin. We see the crows and rooks and other omnivorous birds, in hoards, sometimes so great as to darken the atmosphere, alighting often upon the tilled and newly planted ground, and feeding upon those destructive larvæ and insects which would otherwise consume the newly-sown seeds and the shooting plants. The insects that commit their depredations by night above ground, whether on the surface of the earth or on the loftiest trees, have myriads of nocturnal winged quadrupeds organized and eager to destroy them.

Thus we observe the first modification of the skeleton of these *cheiropterous* animals, to adapt them for progressive motion through the atmosphere. You have already seen that the pterodactylus among the reptiles used its arms for flying through the air, and had one of the fingers remarkably developed and lengthened, which together with the whole arm, was provided in the living state, apparently, with a membrane that passed continuous from the hand to the posterior extremity. In birds you have seen, that it was the arm that was used to strike the atmosphere, and to carry their carcass through its attenuated strata. We observe that this anterior member is used in the cheiroptera as the instrument for progressive motion through that element. This forms the most important modification of the skeleton; the great development of the arm, and principally of the hand, adapts it to serve as a wing to carry such quadrupeds through the air.

It is obvious, however, that the bat is a quadruped formed upon the plan of ordinary quadrupeds, and not having the means of transmitting, from the cells of the lungs, air through all the bones of the body, so as to render them light like air-tubes,—not having the cells of its lungs extended into the cavity of the abdomen, or coming out into the axilla and other external parts. It required to have the posterior parts of its body as light as possible, that the anterior extremity might have less weight to drag through the atmosphere. It is thus that you observe all the proportions of the bones and muscles of the anterior part of the body much more developed than in the posterior part in the cheiroptera; that the arm, the hand, the head, the thorax, are large, while the lumbar region, the pelvis, the legs, and feet, are very small; proportions the reverse of what we have seen in many other quadrupeds, as in most of the rodentia, in the kangaroos, and in other animals.

Now the arms of these cheiropterous animals are developed to form an instrument of progressive motion, very different in its nature from that of the bird. The organ which the bird employs to strike the thin

atmosphere, and to carry its bulk through the air, is not bone, nor muscle, nor skin, but chiefly developed hairs or feathers, containing themselves great quantities of air in their shafts and their cellular texture, and being of a light, elastic, and dense texture, on their exterior parietes. This is not at all the structure of the wing of the bat; bones and muscles and membrane, and not light feathers, form the instrument that the bat employs in its progressive motion. Its hair, in fact, is less developed than it is in ordinary quadrupeds on these anterior extremities. Here it would have been an impediment to the motion of the arm to have covered it with a thick coating of wool or long hair, such as that which covers the rest of the body. It has, therefore, a hand, still constructed entirely upon the ordinary plan of the hands of mammalia, but varying somewhat in the proportions of its elements as to length and thickness.

Now, in the different regions of the skeleton and the separate bones of the cheiroptera, we observe that the head has generally a lengthened and tapering form, and that this, produced by the great development of the upper and lower jaws, affords a considerable space in those jaws for the insertion and support of numerous tuberculated insectivorous molar teeth. They have, generally, long and sharp canine teeth, both above and below. There is, generally, a vacant space in the front of the upper jaw, and the intermaxillary bones have only a partial development. Sometimes they are only soft and cartilaginous; and since this is the case with the alveoli of the upper incisors, those teeth are very unstable and deciduous. Such being the case, nothing is more difficult than to determine the true adult dental formula of the cheiroptera. But in this vacant space in the front of the mouth, and in the separation of the palatine bones, you observe a further affinity to birds, which have large palatine fissures. Here the eyes are but small, and the orbits communicate, and are perfectly continuous with the temporal fossæ, as in carnivora, but with very feeble zygomatic arches. On the back part of the cranium the parietal bones are observed early to ossify, early to meet, and early to anchylose, so as to form a continuous arch over the hemispheres of the brain, as in most animals where the temporal muscles are powerful. This we saw in the carnivorous quadrupeds, where the ossification also proceeds very rapidly throughout all parts of the skeleton. The parietes of the skull in the cheiroptera are generally thin, smooth, and diaphanous, corresponding with the shallow and few convolutions of the hemispheres of the brain, which, by their limited development backwards, leave the cerebellum uncovered behind them, and we have already seen those cranial bones present this character in edentulous insect-eating quadrupeds, and in birds with smooth hemispheres of the brain. The orbits are as imperfect as in any of the carnivora, and the eyes of bats are very small, although these are nocturnal animals. They are much guided in their motions by sensations received through their large ears, and the great cutaneous development on their wings, the head, and the trunk. In the *pteropus*, however, the orbit is surrounded by a complete osseous ring. In the *rhinolophus*, the small intermaxillaries are soft and cartilaginous, and contain each but one incisor tooth; and in the *nycteris* the intermaxillaries are united by a moveable articulation to the upper jaw-bones, like the moveable face of many birds. There is great diversity in the number and characters of the teeth in this order, and in the extent of their carnivorous or frugivorous habits; but they have all the three kinds of teeth—incisors, canine, and molar teeth, and the molares are covered with a continuous layer of enamel. The incisors above and below are remarkably grooved, and striated longitudinally in the galeopitheci of the Indian Archipelago, which feed both on animal and vegetable food.

The cervical vertebræ admit of considerable motion backwards and forwards in the bats. They are proportionally strong in their processes, and moved by strong muscles, which corresponds with the general great development of the anterior half of the trunk, compared with the small and light posterior part. There is a large part of the vertebral column you perceive in this skeleton of the *rhinolophus* from the catacombs of Paris, behind the last ribs, where there is great mobility—the region of the long, narrow, compressed, lumbar vertebræ. The pelvis has a lengthened form, with the iliac bones often anchylosed to the sacrum and to the pubic bones and the ischium. The pubic bones pass straight and converging downwards to the symphysis, and approach sometimes in their open detached form to the pelvis of the birds. The coccygeal vertebræ also are sometimes lengthened individually to a great extent, and compose a long tail, and sometimes the tail is very short and almost wanting. When these coccygeal vertebræ are extended in this manner to a great length, as you see in these skeletons of the pteropus and rhinolophus, and many other genera, they are employed to sup-

port a separate interfemoral membrane, which passes from the heels to the extremity of the tail. So that there is in these animals a continuous membrane passing from the one arm along the whole length of the body to the point of the tail, and upwards from this to the other arm. Where these vertebræ are not lengthened outwards, we still sometimes observe that this interfemoral membrane is continued across, though not then supported by, the coccygeal vertebræ. When these long cylindrical coccygeal vertebræ, with their accompanying muscles and tendons, are continued through that membrane, it is obvious that they must give it greater strength and variety and power of motion, producing all the vigour and extent of motion for directing its course through the air, which we commonly see in the tail in birds. The iliac bones are strong in these animals, and are anchylosed by a long sacro-iliac articulation to a narrow lengthened sacrum, to give greater security to the cotyloid cavity in this very feeble and very small pelvis, where the long tapering pubic bones do not unite at the symphysis. The cotyloid cavities look backwards, which assists in the singular retroversion of the feet of the bats. The pelvis is, like all the posterior half of the body, necessarily very small, and there are generally but one or two at a birth, which are produced in a very imperfect and helpless state, blind and naked, and are cherished by the warm expanded membranous wings folded round them while they are suckling at the two mammæ, placed on the large and well-developed thorax. So that the situation of these two pectoral mammæ corresponds both with the greater development of that region of the body, and with the convenience of more easily manipulating the young in that situation by the expanded arms and hands. More numerous offspring would have impeded their motions through the air by their weight, and by pressing and impeding the respiratory organs above; and a ventral situation of the mammæ would have required a larger space in that region for their development, than that part of the body affords. When suckling the young, the parent is often suspended by the sharp curved claws of its retroverted hind feet, and the young grasp the fur of the chest; when the parent requires to seek for food, it suspends the young by the hind feet to the same place till its return.

The thoracic region and the respiratory organs are largely developed in the cheiroptera, which corresponds with the vigour of their muscular movements. They have sometimes a passage communicating on each side of the back part of the mouth or the pharynx, which leads to air-sacs that extend between the surface of the body and the muscles of the whole trunk, so that these species have the power of inflating the whole skin of the trunk; they therefore resemble to a certain extent the birds which have numerous air cells extending to the surface of their trunk.

We observe that the sternum is large, like the other bones of the chest, and its upper and anterior expanded part has a carinated form in front, having the prominent crest which is so characteristic of the sternum of birds. The clavicles are remarkable for their great length and strength in all the cheiroptera; they are curved, compressed, strong bones extending to a great distance and allowing the freest motion of the shoulders in all directions. The scapula is remarkable in the cheiroptera for its human-like broad expanded form. It has the dorsal or vertebral margin greater than the other, presenting a wide and extensive surface for the attachment of muscles above and below its spine, and on its interior.

The arms and hands present most interesting peculiarities in the skeleton of these animals. There is a long, cylindrical, and strong humerus. The humerus is moved with great force by the powerful pectoral muscles inserted along the front and sides of this extensive and capacious chest. At its lower extremity we find only a single bone of the fore arm attached, and that has been considered by some as the radius, by others as the ulna. By Blumenbach it is considered as the ulna, by Cuvier and most others it is termed the radius. In order to see which of the two bones this is the representative of, without looking to its muscles and other soft parts, it would be best to observe the general mode of disappearance of the bones of the fore arm. We see that in many animals the radius and the ulna become anchylosed together first at their distal extremity, and then that the anchylosis proceeds upwards until we have only the olecranon left as a process of the radius, and not of the ulna. Where the olecranon itself had entirely disappeared, we would not therefore be justified in inferring that it was the ulna that was left to us and not the radius, but would more legitimately infer from analogy that it was the radius. But the olecranon of the ulna has not entirely disappeared in the bats, it forms occasionally a separate moveable patella at the back part of the elbow, like the patella at the knee-joint. The olecranon of the ulna is, indeed, in other animals only a patella anchylosed to the end of the ulna. This gives a further advantage in mobility

and security to the elbow-joint. The olecranon is here kept permanently detached from the ulna by the violent action of the extensor muscles in the act of flying, but in most other animals where this process exists it becomes anchylosed to the ulna. There is here but one bone then, the radius, continued from the humerus to the wrist, and the bones of the carpus occupy but a very small space, as we saw in the stiff hand of the birds.

We have here then the hand, as in the bird, fixed with the fingers as in a state of extension. It has almost no power of pronation and supination, and it can scarcely bend a finger but the thumb. But from this single bone, the radius, composing the whole fore arm, it has the same advantage which the bird has in folding the wing or the arm to the sides of the body, not as in the ordinary flexion of the hands of quadrupeds, but by rotating the whole wrist and hand upon the end of the radius. It is a motion consisting of adduction and abduction. So that the hand of the bat when it is folded is not bent or clenched like the hand of a human being or ordinary quadruped, but is folded down and has the little finger placed along the side of the radius.

It is thus entirely folded close with the humerus and applied along the side of the trunk. That is an advantage from having a single bone in the fore arm, and the metacarpal bones presenting this groove to rotate on that single bone, the radius. The five fingers are very unequally developed, and vary in different species. Four fingers only are employed to support the membrane or fold of the integuments by which the animal is to wing its way through the air. The thumb is kept free from the membrane, and, as you observe, consists of two phalanges, and serves, by its extension forwards, when the arm is bent and folded close to the chest, as a free hand of itself, dragging the animal forwards by its long hooked claw, or serving to support the animal suspended upon the branches of trees, as in the interior of the trunks of old trees, or in old deserted ruins, where frequently they are found suspended in great numbers by those two long, free, and hooked thumbs. The succeeding four fingers are those which alone are employed for the support of the membranous wings, and they are unequally developed in length, and in the number of their phalanges, in different bats. We observe sometimes that there is but one claw, and that placed at the end of the fore finger; sometimes a second claw, and the other two remaining fingers without claws, as in the vampire. Sometimes the claw bone and the claw are wanting on the middle finger, and left only upon the fore finger, and on the free opposable thumb. Thus the great development of the arm of the cheiroptera is that of the ordinary internal parts, the bones, the tendons, and the organized and soft sensible skin. But in birds these organized parts form but a very small portion of the wing, which in them is composed chiefly of the light and elastic cutaneous appendices, the feathers, which form the lightest and best kind of organ for a continued aerial life. In the bats the internal parts compose the wing, and in the birds the external parts.

The legs partake of the imperfect development of the whole posterior half of the body, and are singularly twisted outwards, from their commencement in the oblique cotyloid cavities of the open pelvis. The femur is of cylindrical form, slender, with a very large articular head and a large *trochanter minor*, directed forwards, the trochanter major being directed backwards. The tibia is long and slender, and the fibula is here most developed where most required, at the ankle joint; it is lost almost before it reaches the upper end of the tibia. From the direction of the cotyloid cavities, and of the whole legs, the tibia is here placed externally, and the fibula internally. The calcaneum, which for greater freedom of motion is here necessarily very short, is also directed inwards, and is bent a little downwards, to give greater extent of motion to the ankle joint. Where there is an interfemoral membrane, we observe extending inwards from the tuberosity of the calcaneum a very slender elastic bone, or ossified tendon, which supports the free margin of that delicate and sensible membrane, and may be looked upon as a prolongation from the *tendo achillis*, or of the calcaneum itself. The toes are all parallel and slender, with large ungual phalanges, and long curved sharp claws; and from the sole of this flexible foot being directed forwards, it serves as a hand for prehension. In hanging thus suspended by the long curved claws of their hind feet, with their head downwards, and their trunk and arms free, they are ready at a moment's warning to loosen their grasp, to launch into the air with outspread wings, to flit like shadows softly through the darkness of the night, and to pursue their affrighted victims, like spectres and vampires, till they fall their prey.

CLINICAL LECTURE,

ON

WOUNDS OF THE HEART,

Delivered at the Jervis-Street Hospital, Dublin.

By WILLIAM WALLACE, M.D., M.R.I.A., &c. &c.,

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Gentlemen,—I hold in my hand reports of two cases of wounds of the heart, and one of wound of the pulmonic artery and aorta within the pericardium. As similar cases are comparatively rare, I cannot allow these to pass by without an endeavour to make them contribute to your instruction. I shall, therefore, in this morning's lecture, take a review of the more prominent features of these cases, and make upon them such observations as they may suggest.

Case 1.—*Wound of the Pulmonic Artery and Aorta, within the Pericardium, with Wound and Hernia of the Left Lung.—Immediate Death.*—John Higgins, a sailor, aged 28, was stabbed on the evening of the 26th of October, in the upper part of the left side of chest, by a spear-pointed double-edged instrument, eight inches long, and three quarters of an inch broad. This instrument was driven into him in a direction downwards and inwards, by a man named Eastwood, who stood with a raised arm in front of him. Immediately on receiving the wound, Higgins attempted with both his hands to tear open his shirt neck, exclaiming at the same instant, "Oh he has stuck it into me; he has done for me," and as soon as these words escaped his lips, he fell forwards against a table in such a way as to cause a wound and abrasion of his forehead, and instantly expired, without uttering another syllable. He was, immediately after, carried to this hospital.

Some hours after death I examined the body, which was then rigid. A wound about an inch long was observed two inches below the left clavicle, and at the same distance from the sternum. Its edges were quite free from discoloration or inflammatory redness, and were scarcely at all retracted. Some adipose tissue, which lay between the lips of the wound, had precisely the appearance this substance exhibits in the dead body. The integuments surrounding the part where the instrument had entered being raised, it was observed that an ecchymosis existed between them and the pectoral muscle that this muscle had been perforated obliquely from above, downwards and inwards; that the instrument had afterwards traversed the intercostal spaces—dividing the intercostal artery, with the corresponding muscular fibres; and that these had retracted, leaving a space into which a small portion of the left lung had entered. The sternum was next raised, and the small bit of lung which lay between the wounded intercostal muscles, firmly impacted in this situation, being drawn inwards, it was found that the middle of the edge of the upper lobe of the lung was ecchymosed, and incised to the extent of half an inch; that the portion of lung forming the hernia was particularly flaccid, as if it had been strictured or compressed; that the cellular tissue connecting the pleura with the left side of the pericardium was ecchymosed and slightly emphysematous; that the left cavity of the pleura contained fully one quart of blood, very imperfectly coagulated; and, lastly, a wound, three-fourths of an inch long, was observed in the upper and left lateral part of the pericardium and corresponding part of the pleura. The pericardium being now opened by an incision along its anterior surface, and emptied of a large quantity of dark-coloured blood, partly coagulated, it was discovered that the pulmonic artery and aorta were wounded in such a manner, as to render it evident that the instrument which inflicted the wound, having entered the pericardium, had penetrated the pulmonic artery, then traversed its area for three-fourths of an inch, and, escaping from its cavity, had entered the contiguous part of the aorta. In other words, the wound made by the entrance of the instrument into the pulmonic artery was seated at the upper and left side of this vessel, and was distant about three-fourths of an inch from that made by its escape at the lower and right side of the same vessel. While the latter opening corresponded exactly with, or was opposed to, the wound on the left and posterior side of the aorta.

Case 2.—*Wound of the Right Ventricle of the Heart, with Wound of the cavity of the Abdomen and of the Diaphragm.—Instant Death.*—James Bowless, aged thirty-eight years, on the night of the 5th of February, while going up the stairs of a house in Mary's Abbey, of which he was attempting to take forcible possession, was stabbed with a long sharp knife, in the middle of the anterior and left part of his trunk, by a person coming up the stairs behind him. He instantly fell and

never spoke. There was scarcely any blood discharged from the wound.

On examining the body, the wound, which was an inch in length, was found seated at the external edge of the rectus muscle, immediately below the seventh rib, and was quite free from inflammation or discoloration. When the right side of the sternum was raised, and the handle of a scalpel passed from without through the trajet of the wound, it penetrated the diaphragm, entered the abdomen, traversed an inch of this cavity, re-entered the diaphragm, passed into the cavity of the pericardium, and perforated the right ventricle of the heart. The length of the trajet of the wound was at least six inches. The pericardium was full of uncoagulated blood.

CASE 3.—*Wound of the Left Ventricle of the Heart.—Instant Death.*—John M'Can, aged 28, a shoemaker, received in an affray which took place in a court at the rear of this hospital, a stab in the breast with a shoemaker's knife. He fell as soon as he received the wound, and was instantly carried into the hospital. He was alive when he reached the door, but life ceased, while he was being carried up stairs. He lived, perhaps, five minutes after the stab. Little or no blood was discharged from the wound.

His body was examined twenty-four hours after death. His muscular system was then rigid. A wound was observed externally, about three quarters of an inch in length, placed in the fifth intercostal space, and free from every appearance of inflammation or discoloration of the surrounding integuments.

The better to ascertain the direction the instrument had taken, and the parts which had been wounded by it, the integuments and cartilages of the ribs were removed on the right side, and the edges of the sternum on the same side were so raised as to allow the trajet of the wound to be examined, when it was found that the instrument had passed obliquely between the fifth and sixth ribs, near their sternal extremities, had entered the pericardium, and penetrated the anterior wall of the left ventricle of the heart near its apex. The pericardium was full of partially coagulated blood.

Remarks.—Let me beg of you, Gentlemen, to hold in recollection certain facts which these cases demonstrate.

1st. That in all the cases, the external wounds were free from inflammation, and that they presented exactly the same characters as wounds inflicted on a dead body. Upon these facts I shall have occasion to observe just now.

2ndly. That in the case of Higgins there existed a small hernia of the lung, which did not form any external swelling, consequently, when the parietes of the chest have been wounded, a hernia of the lung may occur, and yet be so small as not to attract any attention. Such an event would most probably lead to very serious consequences.

3rdly. That in the first case, the cavity of the chest contained a very large quantity of blood, although there was scarcely any external hemorrhage. Was the blood poured out by the wounded intercostal artery, or through the opening in the pericardium, from the wounded pulmonic artery and aorta? By both, perhaps, but probably in the greatest quantity by the intercostal artery. I am of this opinion, because, in the two other cases, although the pericardium was full of blood, there was only a very small quantity of this fluid found in the cavity either of the chest or abdomen, with which the wounds in the pericardium communicated. You remember that the wound in the pericardium communicated with the thorax in the case of M'Can, and with the abdomen in the case of Bowless. Hence, as the quantity of blood effused from the intercostal artery was so considerable, we may infer that hemorrhage from one of the vessels might cause death in even a very short time. The proximity of the intercostal artery to the centre of the circulation is necessary to explain this fact; for it is probable that death by hemorrhage would not occur (at all events under common circumstances), in consequence of a wound of an artery of the same caliber as the intercostal in a more remote part of the body.

4thly. That in the first case, while the heart was in action, the instrument entered the pericardium, transfixed the pulmonic artery, and wounded the aorta without injuring the left auricle, or any other part of the heart; and that in the second case, the instrument entered through the diaphragm into the cavity of the abdomen, that it then escaped from this cavity, perforating the diaphragm a second time, and entered the pericardium and heart. These are facts which anatomy teaches us to be possible.

5thly. That in two of the cases death was instantaneous; and that although life persisted for four or five minutes after the receipt of the wound, in the third case, the individual immediately fell on receiving it, and lost all power of moving from the spot on which he was wounded. These facts I shall apply just now to a practical purpose.

Lastly. Although death was so rapid in all these cases, the bodies presented after death the usual muscular rigidity. You know that it has been asserted, that in cases of sudden death, this rigidity does not occur. There are certainly modes of sudden death in which it does not take place, as in death from lightning, but the cases which we are considering demonstrate that there must exist some other cause of its absence than the rapid occurrence of death.

It may be said that instant death followed the infliction of the wounds in all these cases. But are all wounds of the heart, of whatever kind they may be, necessarily fatal? Such is universally, perhaps, the vulgar opinion, and it would appear that, even as late as the days of Mr. JOHN BELL, the same opinion very generally prevailed in the profession; for we find that able and bold surgeon and original author directing his pupils never to call any wound mortal, unless it be a wound of the heart. You will find, however, from an examination of the records of surgery, that although wounds of the heart are dangerous in an extreme degree, all such wounds are not necessarily mortal. BOHN, BALLARD, and BULLOC, quote cases of wounds of the heart which were not mortal. A ball was found in the apex of the right ventricle of a soldier's heart six years after the wound had been inflicted. In the 14th vol. of the "Edinburgh Medical and Surgical Journal," there is the case of a British soldier who survived thirteen days with a musket ball in his heart. In "Dorsey's Surgery," a case is given on the authority of Dr. BABINGTON, of a soldier who lived for some time after his heart had been perforated by a bayonet. I may add, that it has been often observed that animals killed in the chase have presented either well-marked cicatrices of the heart, or foreign bodies lodged in that organ, which had been long before projected from fire-arms. Nor should I forget to mention, that the operation of acupuncture of the heart has been practiced without any apparent injury, or even inconvenience. It hence seems quite decided, that the vulgar opinion that wounds of the heart, of whatever kind they be, are necessarily mortal, is erroneous. Indeed, I believe with Dr. DORSEY, that the heart has been very often slightly wounded without fatal consequences. The experience of Dupuytren leads to the same conclusion. Has the heart been slightly wounded in the person of the man who is now lying in the hospital, and who a few days ago received a wound with a small penknife in the cardiac region? When I consider the state of the action of his heart at present,—the pulse is small, feeble, and very frequent,—and also the extreme agitation of his circulation and of his nervous system, which, as I have been informed by Mr. Sutton, existed on his coming into the hospital, I am induced to say that possibly his heart has been punctured.

When a wound of the heart causes death, the event occurs either immediately, in consequence of an interruption to the action of that organ, or in a longer or shorter interval, in consequence of inflammation. We can easily conceive it possible that the action of the heart might be impeded, and death follow from the influence which a very small wound might exercise on its vital actions, or, in other words, that a trifling injury of the structure of the heart might cause a sensation of its contractions. That this is not likely, however, to occur, is rendered probable by the results of the practice with the acupuncture-needle. The most likely, if not the only, way in which a wound of the heart will cause immediate death is by hemorrhage. Thus, should one of the cardiac arteries be divided, the pericardium will quickly fill with blood, the heart will become compressed and unable to act, and death will inevitably follow; or should any of the cavities of the heart be perforated by a small instrument, the same consequences will follow as if the cardiac artery had been divided. I should however, remark, that there is reason to believe, from cases on record, that small punctured wounds of the heart, with penetration of one of its cavities, are not necessarily followed by bleeding, as might be expected,—a circumstance which may, perhaps, be explained by the peculiar arrangement of the fibres of the heart; for these fibres may have the effect of preventing the inner and outer orifice of a wound in the structure of the heart from corresponding, and thus form a valvular arrangement which will effectually prevent any sanguineous effusion. Should the wound in the heart be so large as not only to preclude such an event as this, but to allow the blood to escape largely in the pericardium, it is clear that death must instantly follow, as well because the action of the heart is rendered unavailable, as because its action is prevented, by the pressure of the blood which has escaped from its cavity.

You are, therefore, Gentlemen, to remember that wounds of the heart are not necessarily mortal, but that they are, however, highly dangerous, and that death may follow them either immediately, from the discharge of blood, or subsequently, from inflammation. Hence the

trentment of such cases, when there is time sufficient for any treatment, must be guided by the same principles as regulate the treatment of wounds or injuries of all other important organs. You are in the first instance to combat hemorrhage, and subsequently inflammation.

A knowledge of the mode in which wounds of the heart kill, may be practically useful on some occasions. Thus, in legal medicine, the question may arise, how long could an individual survive a given injury or wound of the heart? and the answer may involve the life or death of an individual. I will mention to you a case of this kind, which I give to you on the authority of the editor of Beck's Jurisprudence.

The keeper of a house of ill fame in Greenock was indicted in 1819 for the murder of a sailor, by shooting him through the chest. It appeared from the evidence of the medical witnesses that the auricles and part of the aorta next the heart were shattered to atoms by the slugs and brass nails with which the piece was charged, and in their opinion he must have dropped down dead the moment he received the shot; therefore, as the body was found in the street, and the door of the house was eighteen feet up an entry, it followed that the prisoner must have run after him into the street and there shot him. On the other hand it was urged and proved that the deceased, while attempting to enter by force the house of the prisoner, was shot by him; and, besides direct testimony to this effect from those within the house, and from a lad who was with the deceased at the time, it came out on evidence that there was a stream of blood from the door of the house to the spot where the body was found, which could not have run from the body towards the house, as the threshold of the door was on a higher level than the pavement of the street. On this evidence the prisoner got a unanimous verdict of acquittal.

Now let me ask whether you would conclude, from the extent and character of the wound of the heart in this case, that the sailor had been shot at the door in the entry, and afterwards walked into the street, or that he had expired on the spot where he received the wound? For my part I can have no hesitation in agreeing with the opinion given by the medical persons who examined the body, provided the degree of injury inflicted on the heart be correctly reported. You remember it was said that the aorta and part of the auricles were shattered to atoms by the slugs and brass nails. From the history of the cases which we have been considering, and from your knowledge of the functions of the heart, what would you conclude would be the immediate effects of such a wound? Would you not form the opinion that it would be impossible for the individual to have walked from the house in the entry into the street? You may ask how are we to account for the stream of blood which lay between the body and the door of the house in the entry? To account for this is not perhaps very difficult. We can easily conceive that the individual who committed the murder, or some of his associates, may have deposited blood for the purposes of deception. This I am the more disposed to believe, when I reflect how very unlikely it is that a human body would afford such a quantity of blood as would form a stream of eighteen feet long on an irregular surface. In the cases which we have been considering, very little blood was effused, although the wounds were incised, and therefore more likely to bleed than if they had been gunshot. The man was however, as I have said, acquitted, and here we have, in my mind, an instance of a not unfrequent occurrence, I fear, in this country, that of the ends of justice being defeated from want of a tribunal properly qualified to determine medico-legal questions.

It is, however, possible for an individual to live for some minutes, and to be able to walk a little way, after having received such a wound of the heart as may cause death by effusion of blood. Thus, if the injury inflicted be a wound of one of the cardiac vessels, or a small penetrating wound of one of the cavities of the heart, we may easily conceive that some time would elapse before such an effusion takes place as will cause death by interrupting the heart's action. Such cases are, however, entirely different from those which have lately occurred to us, as also from the one which occurred in Greenock. Therefore, while you admit that an individual may live for some short time after he has received a mortal wound of the heart, you are also compelled to believe that certain injuries of that organ must cause instant death—death on the spot where the individual has received the injury.

Suppose, Gentlemen, you were asked, what proof have you that the wounds of the individuals whose cases we have been considering were inflicted on the living body? I am presuming, of course, that the proof of the act of stabbing having been committed during life is deficient, and that you have no means of ascertaining whether the wound was inflicted be-

fore or after death, except those you derive from an examination of the body. Questions of this kind are sometimes of great importance in legal medicine, and are often solved with much more difficulty than you might at first view suppose. All writers on medical jurisprudence have laid down criterions by which they say we are to judge whether a wound has been inflicted before or after death—but are these criterions sufficient? Let us see. Let us consider, in the first place, what are these criterions; and, secondly, let us apply them to the cases in question, and see whether they be sufficient. Dr. Beck says wounds received before death are marked by red, bloody, and serrated edges, and that those inflicted afterwards are livid, and their edges close to each other; and Dr. Paris says that in distinguishing a wound inflicted on the living body, and one which has been artfully occasioned after death for the purpose of embarrassing judicial inquiry, it will be essential to observe whether hemorrhage has taken place, and to ascertain whether the blood so effused had coagulated. Both these authors seem, however, to be well acquainted with the insufficiency of such tests. Thus Dr. Beck, immediately after having laid down the criterions for forming a judgment which I have just mentioned, observes that there are circumstances which invalidate their importance. And Dr. Paris says, with regard to the fact of hemorrhage being admitted as a test of life, that it must be remembered that extensive lacerated wounds may be inflicted on the living body with but little or no effusion of blood. On the other hand the knife of the anatomist not unfrequently draws considerable blood from the dead body, and wounds have been known to bleed long after life has fled, a fact which has been sometimes raised by superstition into prophetic importance. The orifice of a vein that may have been opened during life, will sometimes bleed afresh after death. This occurred to a very considerable extent in the body of the prince royal of Sweden, who died of apoplexy. John Lees, the subject of the noted inquest at Oldham, bled after he was laid in his coffin; but under such circumstances, as Dr. Paris has observed, the blood is never found in a state of coagulation.

An instinctive illustration of the point we are considering is furnished in the very extraordinary trial of Green, Berry, and Hill, in the year 1678, for the murder of Sir Edmonsbury Godfrey, a zealous protestant magistrate, during the pretended popish plots in the reign of Charles the Second. It appeared from the evidence of one Prance, that Sir Edmonsbury was strangled by a handkerchief in Somerset House on a Saturday night, and that the body, after remaining concealed until the following Wednesday, was carried at midnight into the fields beyond Soho, where it was thrown into a ditch, and where the deceased's own sword was thrust through his body, in order to excite a belief that he had committed suicide. Upon the trial, Messrs. Skillard and Cambridge, surgeons, stated that the sword must have been passed through the body after death, as there was no evacuation of blood, *which must have happened had such a wound been inflicted during life!*

Now let us apply the criterions given, to the cases we have been considering. Was there any inflammation around the wounds? None. Was there any external hemorrhage? None. Was there any remarkable gaping of the wounds? None. In short the wounds in all the individuals in question presented no effusion externally which might not be presented by a wound inflicted on them after death. But was there, on dissection, any more conclusive signs? Yes. In the first case we had a hernia of the lung, an extremely large quantity of blood in the pleura, an emphysematous infiltration of the cellular tissue—none of which appearances could, in all probability, have taken place, if the wound had been inflicted after death. In all the cases there was a quantity of blood effused into the pericardium greater than could by possibility have been effused from a wound inflicted after death on the heart, however full this organ might have been of blood when the individual died. Thus, in these three cases, while we find that the signs which are commonly laid down and derived from *external* appearances were deficient, those discovered on internal examination of the body were conclusive. Hence then an argument is afforded, were any necessary, that careful dissection of the body is indispensable in all cases of suspected death from violence, before we can possibly form a judgment. In proof, however, that on some occasions a judgment has been given from external appearances alone, as in the case of Godfrey, I could cite many cases, but will content myself by reading you one from Fœdere, which bears on this question, and with which I shall conclude this lecture.

The widow Montbailly, of St. Omers, aged 60, and of a very gross habit, was much addicted to intoxication, and, in fact, was inebriated daily. On the 27th of July, 1770, at seven a. m., she was found dead in her chamber, lying on a

trunk, which had sharp edges. A physician and surgeon visited the body on the next day (thirty-two hours after her death had been discovered), and reported that they found ecchymosis and contusions on the arms, thorax, and particularly over the third, fourth, and fifth ribs. The neck and upper part of the breast were also ecchymosed. The head was swelled, blood was extravasated under the skin of the face, and the nose was filled with clotted blood. On the eyelid there was a wound of nine or ten lines in extent, which penetrated to the orbit, and which might have been caused by a sharp instrument, but could not in their opinion have caused sudden death. On opening the trunk of the body, all the internal parts were found in a natural state.

The reporters gave it as their opinion that the ecchymosis, the swelling of the head, and the extravasated blood, were occasioned either by a fall, or by blows from an opposing body; and that the female had died either from the hemorrhage occasioned by the wounds or from suffocation.

On combining the result of this inspection with the fact that the defunct formerly had repeated quarrels with her son and daughter-in-law, it became the prevailing opinion that they had murdered her. The superior court of Arras, before whom the case was tried, condemned Montbailly and his wife to be broken on the wheel, and it was actually executed on him. The wife claimed a delay on account of her pregnancy, which was granted. During this interval a revision of the trial was procured, and the celebrated Louis was consulted as to the point whether the facts stated proved that the woman was assassinated. The result of his investigation was, that there was no certain proof of the commission of murder, and that all the circumstances enumerated were stronger proofs of the individual having died from apoplexy than from any other cause. The following are some of his reasonings and remarks.

Intemperance predisposes to sanguineous apoplexy, and the reporters have neglected their duty in not opening the head of the deceased, since by doing so the condition of the internal parts would have explained the cause of the hemorrhage. Again, a person in a state of intoxication, and predisposed to this complaint, would, on falling against any sharp-edged substance, naturally lose a considerable quantity of blood, and also have the arteries and veins of the head much distended. He totally discards the idea that the hemorrhage from the wound of the eye was the cause of death.

As to the ecchymosis or livid spots found on the thorax and arms of the deceased, and which the reporters attributed to blows or falls, M. Louis observes, that they are the ordinary appearances found on those who die in a state of intoxication, and among others quotes the following case in confirmation from Morgagni. A beggar went to bed drunk, and died suddenly during the night. This was at the end of January 1746. On the next evening he was carried to the Anatomical Hall in Padua, and on the third day after his death he was dissected. Morgagni found the body still warm. The scrotum was ecchymosed, and of a red colour, and the face was filled with blood, which was effused, not only under the skin, but among all the muscles; the membrane that separated them and the glands appeared engorged. Louis remarks that these spots should have been particularly examined, in order to have founded any charge on them.

It appeared further, that the body was examined at the end of the month of July. Might there not have been some incipient putrefaction present, and would not this account for the swelling of the head, the lividness of the thorax, and other similar symptoms? As to the wound in the eye, the reporters themselves leave its effects uncertain, while the cause might have been accidental.

On these grounds, Louis gave it as his opinion, that the report was inconclusive, and that there were no proofs of assassination. The superior Court of Arras accordingly in 1772 revoked their decision, exonerated the memory of Montbailly, and enjoined the physicians and surgeons thereafter to extend the examinations to every part of the bodies of those found dead; and also to state in their reports the scientific reasons for all opinions they might give.

ON

PHTHISIS IN MONKEYS

AND OTHER ANIMALS.

Dr. Reynaud, one of the most accurate of the French pathologists, lately read a memoir before the *Academy of Medicine*, Paris, on the tuberculous affection in monkeys, compared with the same affection in man. The following are the principal facts established by this interesting piece of comparative pathology, to which we refer those who wish for more extensive

or more exact information on the subject. It is published in the *Archives de Médecine*, vol. 25, p. 149—171, and p. 301—326.

1. Nearly all the quadrumana brought to Europe die tuberculous. This has been attributed to confinement and to change of climate; but till we know of what diseases they die in their wild state and in their native country, such opinions must remain conjectural.

2. The tuberculous deposition is more abundant, and at the same time is diffused through a greater number of organs, than in man.

3. The organs which the deposit affects are not the same. In the monkey it is generally found in the *kidneys*, the *spleen*, and the *liver*; often in the heart, very rarely in the mesenteric glands, or on the peritoneum—never in the small intestine. The reverse of this occurs in man. The lung is the most frequent seat of the disease in both; but in the monkey the spleen is affected to almost the same extent, and the tubercles soften with almost equal rapidity.

4. In all these respects the tuberculous affection in children forms a sort of intermediate link between the disease in the human adult, and in this family inferior to ourselves in the zoological scale.

The following facts will serve at once to illustrate, confirm, and limit these general principles.

Dr. Reynaud examined more than twenty monkeys that died at the Garden of Plants in Paris. All with one exception died phthisical. They had tubercles in the lungs, and likewise in several other organs. Fifteen cases of which he took notes, form the basis of his observations. The species examined were various; but neither this, nor sex, nor age, nor time of residence in Europe, influenced the uniformity of the lesion, which was constantly tuberculous.

In the fifteen cases one was not tuberculous; fourteen had tubercles in the lungs; in three they were confined to the lungs; in one they were extensively developed in these organs, while there were a few tuberculous points in the mesenteric glands. In the ten remaining cases, tubercles existed in several organs simultaneously. They were detected

In the Kidneys	9 times.	Tubercles very small, superficial.
Spleen	8	—	
Liver	6	—	Tubercles generally numerous, small, superficial.
Heart	3	—	Never numerous, nor softened; small.
Under its Pericardium	4	—	Never numerous, nor softened; small.
In the Mesenteric Glands	4	—	Only two or three tuberculous points and swollen glands.
Epiploon	3	—	Tubercles largely developed.
Peritoneum	1	—	Tubercular peritonitis; adhesions in many cases.
Intestines	0	—	No ulcerations.
Pancreas	1	—	Tubercle in the centre, about the size of a nut.
Bladder	1	—	One very small tubercle.
Superrenal Capsule	1	—	Several tubercles.
Testicle	1	—	One small tubercle.
Uterus	1	—	Idem.
Cranium	1	—	Several tubercles in the diploe.

Dr. Reynaud had rarely an opportunity of examining the osseous or the nervous systems. The liver was fat (gros) in no instance; in man, on the contrary, this lesion occurred in 40 out of 120 cases observed by Louis.* Pericarditis was met with in four of the cases; it was developed subsequently to the tubercles, and appeared to be regulated by the same laws as pleuritis in the phthisical.

The lungs were in several cases entirely or in part converted into tuberculous matter; none of the tissues remained; all had undergone the same transformation. Ulcerations were discovered twice in the laryux; never in the trachea or its two divisions. In man, ulcerations of these parts occur in the majority of cases. Louis attributed them to the inflammation excited by the matter expectorated. Now it is singular, that in the monkey the cough is always dry, and unaccompanied by expectoration.

The bronchial glands were always more or less implicated in the tuberculous affection. In one case their enlargement had completely obliterated the left bronchus, and thus obstructed respiration in the corresponding lung, which, as well as the side of thorax, was much contracted.

The spleen in two cases contained a few crude tubercles. In the six remaining cases it was completely stuffed with this

* Phthisie Pulmonaire, p. 115, 116.

morbid product, enlarged, deformed, and often adherent to the peritoneum. The blood in the cells formed reddish clots, in the midst of which were tuberculous points. Tubercles in various stages of development replaced the tissue of the organ; this deposit was sometimes contained in caverns lined with a false membrane. In one case the tubercles were isolated and crude in the lungs; in the spleen, on the contrary, they were large, and softened in the centre, thus constituting a true splenic phthisis.

Dr. Reynaud has made it highly probable that these alterations take place in the blood contained in the cells, and do not commence in the tissue of the spleen itself.

The stethoscope and percussion enable us to detect the changes which take place in the thorax of these animals, as the following short abstract of a case will show:

A Papion, aged about five years, in Europe eight months, coughed, and had dyspnœa. The left side of the chest was clear on percussion, the right was dull. The respiration on the left side was vesicular, mixed with râle; on the right it was cavernulous, silvery, and gurgling. There was cough, but no expectoration. The pulsations of the heart could scarcely be counted.

Inspection.—On the left side there was a recent effusion of blood, and false membranes in the pleura. Some crude and softened tubercles were found in the lung. The right lung contained a great number of tubercles isolated, and in irregular masses. One of the inferior lobes was converted into a large, purulent, tuberculous mass. The bronchial glands were enlarged and tuberculous. The *spleen* contained a great many tubercles in various stages of softening, and caverns of various sizes. The *liver* contained a few yellow crude tubercles. In the *kidneys* there were one or two. The *epiphoon* was covered with little semi-transparent granulations. The *heart, pericardium, stomach*, and *intestines*, were healthy. The *mesenteric glands* unaltered.

According to Louis and Dr. Reynaud's calculations, the left lung is more frequently tuberculous than the right, and to a greater degree; females are more subject to phthisis than males—children than adults; and in the division of animals which approaches nearest to ourselves, tuberculization is at its maximum of frequency, extent, and diffusion. "Then," says Dr. R., "whether we consider man relatively to the lung apparently most disposed to tubercles, and belonging to that side of the body which, compared with the other, seems inferiorly developed;—whether we regard sex, age, or species,—tubercles follow one constant order in their development—that of organic degradation.

We will add but one remark,—tubercles have been found, but that very rarely, in the fœtus and new-born children.* Towards the 3rd year they develop rapidly, and probably are at their maximum. Is there a certain order in the series of diseases through which the human form passes, bearing some analogy with the gradual evolution of its organization? Do its morbid processes and products, at various periods of its existence, correspond with those of permanent and lower organizations in the animal series? Is there, for instance, a class of animals below which no tubercles are formed or deposited, in this respect answering to their non-existence, or, at least, their comparatively very rare existence, in the human fœtus? Tubercles have been observed in nearly all the orders of mammiferæ, in man, in the quadrumana, carnivora (lion, dog), rodentia (rabbit), pachydermæ (horse, pig), ruminantia (cow, antelope, sheep), cetacea. We had an opportunity of examining some crude isolated tubercles of various sizes in the lungs of a porpoise dissected lately by Dr. Grant. The learned professor said they were generally found in the lungs of those animals. Tubercles have also formed in the second class of vertebratæ. In birds, the parrot commonly dies tuberculous.† Are tubercles ever formed in reptiles, in the turtle, crocodile, snake, or frog, in fishes, or any *cold-blooded* animals?

We have not space for a detailed account of all that pathologists have discovered in the comparative anatomy of this disease; but it may be fairly admitted, that so far as observation has hitherto extended, tubercles are much more frequently found in animals that live on vegetable than in those that live on animal food.

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* Papaveine: "My colleague, Guyot, examined 400 new-born children, without finding one tuberculous.

† See Andral's Anatomie Pathologique, vol. 1, p. 430. Dupuy "Sur Affection Tuberculeuse." Meckel "Der Anatomie Pathologischen," art. Tuberkeln. Carswell's drawings at the London University.

CÆSAREAN OPERATION,

PERFORMED IN CONSEQUENCE OF

COARCTATION OF THE PELVIS.

To the Editor of THE LANCET.

SIR,—The following is an outline of the case requiring the Cæsarean operation, a notice of which I forwarded to you on Tuesday last.—Your very obedient servant,

T. L. GREAVES.

Great Easton, Rockingham,
April 21st, 1834.

Mary Bamford, aged 38, was seized with labour pains on Wednesday, the 9th instant. About 3 o'clock p.m. of the same day I was summoned to attend her. I found her in bed—a pale, feeble, and emaciated object. She, together with her friends, informed me that from her last confinement, which happened three years ago, she had gradually become more and more infirm, and that for the last three months she had lost almost the entire use of her limbs, and had been carried to and from bed, and that her health was materially impaired. Upon an examination, I found the outlet of the pelvis diminished in an *extreme degree*; the tuberosities of the ischia so approximated that only one finger would pass between them; the cavity of the pelvis much diminished, and the promontory of the sacrum projecting into and occupying nearly the whole of the brim. I obtained the presence of a neighbouring surgeon,* an intelligent and respectable man. At this time no presentation could be felt, the membranes protruding through the os uteri, in a small and conical figure. The great difficulty of the case was here fully pointed out to all the friends. At 6 o'clock on the following morning the membranes gave way, and the liquor amnii was discharged. The external parts were freely dilated. Still no presenting part could be satisfactorily ascertained. I thought once or twice (an assistant pressing upon the abdomen) that I touched the scrotum of the fœtus, but by the *most extensive* examinations that *could* be made, this could not be decisively known. The rectum and bladder had both been well emptied.

At 6 o'clock in the evening, the woman, having passed a wearisome day, consented to have the Cæsarean section performed, the fearful consequences of it having been first freely declared to herself and friends. The pulse at this time was 112, the abdomen becoming tender to the touch with vomiting, and the woman complaining of being very weary. Compelled by inexorable necessity, we entered upon the unpromising and painful task.

The woman being brought to the edge of the bed, with her legs hanging down (the bladder and rectum being previously emptied), I commenced the external incision as low down as practicable, on the left side of the linea alba, and on the inner edge of the rectus muscle, carrying it upwards full six inches in length. The sheath of the rectus muscle being brought into view, it was divided, with the muscle, carefully, till the peritoneum was exposed, which was divided upon the finger to the same extent.

By the retraction of the muscles, the uterus was brought clearly under the eye, the large cluster of vessels on the lateral part of which was immediately noticed. A corresponding incision being made upon the uterus, and the membranes torn through, I introduced my hand, and, seizing a leg of the child, the breech of which was at the brim of the pelvis, I quickly extracted it. Reintroducing it directly, I separated and withdrew the placenta, the uterus contracting firmly, with no hemorrhage. On making the section of the uterus at the upper part, my knife came just upon the edge of the placenta, some hemorrhage ensuing, which was immediately arrested by the quick extraction of the fœtus. Only a few ounces of blood were lost by the operation, and scarcely a drop from the external incision. The wound was closed as quickly as possible (the intestines affording some trouble) by means of sutures, adhesive plaster, and a bandage placed around the abdomen. A draught of laudanum and sal volatile was now given to the poor woman. The operation, up to the extraction of the placenta, lasted but a few minutes.

Ten o'clock. Pulse 112; countenance good; speeks cheerfully; no hemorrhage.

2nd day. Has passed a quiet night; pulse 120; vomited several times; countenance good, and complains but little. Has passed her urine. 7 p.m. Pulse 100; lies in a tranquil state; the catheter was passed, and some high-coloured urine drawn off. To take effervescing draughts *ad libitum*.

3rd day. Has had no sleep; pulse 120; tongue dry, and complains of thirst; has vomited several times; no abdominal tenderness; a slight discharge *per vias naturales*. Ordered a dose of castor oil. The urine drawn off was of a very high colour. 2 p. m. Bowels freely moved by the oil. Appears relieved. 8 p. m. Much the same. Ordered an anodyne.

* Mr. Besson.

4th day. Had a restless night. Vomiting continues; pulse 130; complains of pain in the abdomen, with tenderness on the *right* side. Ordered fifteen leeches, and to be fomented constantly. 4 o'clock p. m. Tenderness and tension much relieved. Ordered saline draughts, with tinctura opii every three hours.

5th day. Has passed a better night. Ordered an injection of gruel and castor oil.

6th day. Bowels freely moved; pulse 120. Feels much relieved, and is very cheerful. Dressed the wound, which looks very well. No abdominal tension or tenderness.

7th day. Symptoms much the same. Ordered some light broth, and to be laid upon her side; the many-tailed bandage to be applied around the abdomen on a large scale.

8th day. Has slept nearly all the night. Is much relieved. No vomiting. The urine drawn off, of a paler colour, and increased in quantity.

9th day. Much the same. In the evening she became restless, and had an epileptic seizure, to which she had been subject before. Bowels freely moved.

10th day. Has had a quiet night. Pulse 112.

11th day. Is much better. The abdomen has nearly resumed its natural size; perfectly soft, with no tenderness; bowels acting freely; wound healing; passes her urine without any difficulty.

The child of course is living.

CASE OF

DISEASE IN THE BRAIN,

SUDDENLY PRODUCING TOTAL BLINDNESS,

And exhibiting, after Death, Ossification of the Dura Mater, and a Tumour of the Brain which weighed Thirteen Ounces.

By W. C. Clough, *Esq., Surgeon, Tonbridge Wells.*

On the 17th day of June 1833, a youth named William Elliott, twelve years old, was brought to me by his parents, who stated, that on the preceding day, after having made a hearty dinner, he had suddenly become blind. Upon inquiry, I ascertained that this youth had at all times complained of a pain in his head, which on several occasions was exceedingly severe; his appetite, generally, was almost insatiable, and frequently after a full meal he was quite stupid, and would go to sleep, and remain in that state for a very considerable period. His disposition was peevish, and when at play with his brothers, or boys of his own age, he would, without the slightest provocation, become very quarrelsome. His intellects seemed below par; he was sulky; and would occasionally skulk away from his companions for several days together. He frequently had double vision, and, now and then, observed small bodies floating in the air. The glare of the sun, or any other luminous body, was extremely annoying to him. His memory was very defective. The pupils of both eyes were extraordinarily dilated; they did not present their usual circular appearance, but seemed at their uppermost parts a little indented. The eyes did not present their usual brilliant character, but the iris exhibited considerable vivacity. Upon questioning the little fellow, his answers were given with some hesitation, his utterance seemed impeded, and, in fact, he appeared half idiotic. He mentioned that he had great pain in the head, and a sensation of something rumbling within the brain. The power of moving the upper limbs was sensibly diminished, but nothing of this kind was observable in the lower extremities. The digestive organs seemed to have great power and activity. The pulse was full, though slow, and respiration appeared to be performed in a laborious manner.

Treatment.—He was immediately cupped on the nape of the neck, and some active aperient medicine was administered. On the next day the pulse had risen, was not so full, and his intellectual faculties were not so obscured. He was again cupped, and this operation was also repeated on the following day. Two grains of calomel and the sixth of a grain of tartarized antimony were administered every six hours; blisters were applied behind the ears, and, on the eighth day, still finding the circulation full, I bled him to the extent of fourteen ounces. Immediately after this bleeding he could distinguish the white parts of my dress, and also see the ground as he walked along the road; but I am sorry to add, that this favourable state only remained for two days; however, as the lad had experienced so much relief from the venesection, it was again had recourse to on the eleventh day, but with no good effect. A large blister was now placed on the nape of the neck, and this was kept open with savine ointment. The gums having become tender, the calomel was omitted, and three grains of the *hydrarg. c. creta* given every night at bed-time. The bowels were cleared, occasionally, by means of the black draught. At the end of three weeks

the general state of the boy's health was decidedly improved, he was more lively and cheerful, better tempered, and happier in the society of his brothers; but he was still *blind*. A seton was now introduced at the nape of the neck, and emesis produced on alternate mornings, by means of a scruple of the powder of ipecacuanha. At the expiration of six weeks the boy's health remained good, but being convinced that there existed some organic lesion of the optic nerves, I stated my opinion to the parents, at the same time informing them that the loss of vision would, I feared, be permanent. However, as I very much desired to have the advice of Mr. Lawrence, I recommended that that gentleman should be consulted.

The boy was accordingly taken to London for the purpose. Mr. Lawrence saw him, and after a careful examination declared that no treatment could do any good, as the optic nerves were in a state of disorganization. Before Mrs. Elliott left London, she was recommended to take her son to the Ophthalmic Infirmary in Moorfields, where he was seen by Mr. Tyrrell, and continued under his care for thirteen weeks. He was then brought home; his health had by that time suffered materially, and it was quite evident that he must soon sink. His head was enlarged, and he speedily took to his bed. After coming home he was admitted a patient of the Tonbridge Wells Dispensary. Gradually he got worse and worse, and about the middle of the month of February lost the use of his limbs; his senses gradually failed him; a considerable discharge of blood, having a very dark appearance, and a peculiarly offensive odour, issued from the mouth and nares.

He died on the seventh day of March last.

Post-mortem Examination.—The day after his death I obtained permission, after much opposition, to examine the brain. The head was exceedingly large, and upon removing the skull-cap, I found that about two ounces of fluid had been effused between it and the dura mater. The dura mater itself was, in several places, perfectly *ossified*, and on rubbing the fingers over those portions, the sensation produced was, as if they were passing over sand-paper—the ossifications were so minute. The arachnoid membrane was opaque, but the pia-mater presented its usual appearance. The right hemisphere of the brain was much larger than the left, and on laying open the lateral ventricles, *an immense tumour* presented itself. This was carefully detached, and on being placed in a pair of scales, was found to weigh thirteen ounces and a quarter. Its upper portion was rather hard and firm, but the under surface was soft.

The tumour appeared to have had its origin in the central portion of the right lateral ventricle, and was distinctly attached to the sheath of the thalamus nervi optici of that side. The thalami nervorum opticorum of both sides were completely destroyed; the investing neurilemæ alone being left. The other nerves of the brain were carefully examined, and, with the exception of the fifth pair, seemed in their natural state. I ought to state that the skull-cap was so exceedingly thin and transparent, that any object might be readily observed through its walls; indeed, in many parts it was not thicker than the paper I am now writing upon. The cerebellum was in its natural state.

Remarks.

In a physiological point of view, this may be regarded as an extremely interesting and instructive case, as it proves very decidedly to what an amazing extent disease may advance without destroying life, even in so important an organ as the brain. From the constant and severe pain in the head, it would appear that this tumour must have been developed at or soon after birth; that in the early stages of the boy's life its growth was slow; and I apprehend that up to the month of June last, its size must have been very small; that it then underwent an increase of development, and attained its present magnitude during the last eight months of the boy's life. After the first bleeding from the arm, I was quite delighted to find the lad could see; but, as I have before mentioned, this improvement only continued for two days. This induced me to repeat the venesection. At three cuppings and two bleedings fifty-six ounces of blood were taken; and after this, it was really quite remarkable to observe the difference in the little fellow. From being stupid and heavy he became quite lively and intelligent, his appetite was not so ravenous, and his health was much improved in every respect. But the principal point was not attained, nor, indeed, was it possible to accomplish so desirable an object as the post-mortem examination clearly proved.

One circumstance, in this case, particularly struck me, namely, the activity of the iris. Sometimes its vivacity was astonishing. An explanation of this has, I believe, been suggested by Mr. Travers, on the supposition that the eye is sound, and the cause of the amaurosis remote, or external to it, the iris continuing to act by a sympathy independent of the brain. In his "Synopsis of the Diseases of the

Eye," he observes, in a case of circumscribed tumour, compressing the left optic nerve immediately behind the ganglion opticum, although the blindness was complete, the iris was active. In two young ladies, in whom the eyes, as in the former case, were perfect, and the blindness complete, the iris was even vivacious, and there was the strongest presumptive evidence, from the symptoms, that the amaurosis was in the cerebral portion of the nerve." Here it may be observed, that from the commencement of the affection, the symptoms clearly pointed out the brain as the suffering organ; consequently all my efforts were directed to that organ. Notwithstanding the antiphlogistic plan was followed up with the greatest promptitude, the tumour still continued to increase, and eventually the lad's life was sacrificed. Over such a case as this the medical man has no control; all he can do, is to palliate symptoms as they arise, in the best manner he can. The tumour I have forwarded to Mr. Lawrence, to be placed in the museum of *St. Bartholomew's Hospital.*

Tonbridge Wells, 18th April, 1834.

REMARKS ON THE TREATMENT OF

CRURAL PHLEBITIS.

By J. SYMONDS, *Esq., Surgeon, Oxford.*

To the Editor of THE LANCET.

SIR,—I have long considered it the duty of every practitioner of tolerably matured judgment and experience, to communicate to the medical public the results of his observation on the phenomena and treatment of disease, thus contributing to the stock of general information, and having more especially in view, the guidance and instruction of the younger and less experienced members of the profession. I have till recently been deterred from acting on this conviction by the fear of misleading those whom I would fain have enlightened, for I have had no ambition of swelling the amount of "false *facts*," recorded in the annals of medicine, which, according to Cullen (and I am inclined to subscribe to the truth of the *dictum*), exceed in number even the fallacious *theories* which have been broached on subjects connected with the healing art. If I had acted on the impression of the passing time, full oft should I have sent forth reports of cases in which the favourable termination was ascribed to the agency of a remedy which, on further trial, has proved far less potent and efficacious than I had presumed it to be. There is no science which causes greater proneness to indulge in hasty inductions from a few facts than the medical, and none in which such a procedure is more to be deprecated. When a change has taken place in a patient for the better, we are too apt to attribute it to the last measure adopted, whereas, in all probability, the amendment was the result of a series and combination of remedial means included in the previous treatment, which an unexpected *nisus* of the constitutional powers had opportunely aided,—the medicine to which so much had been ascribed, having had perhaps little or nothing to do in producing the improved state of things. There is more than one source of deception to contend with in endeavouring to ascertain with correctness what may be called the etiology of recovery; a very obvious and too common one is, the want of fidelity and exactness in the administration of the remedies prescribed, and in carrying into full effect the plan of treatment which has been laid down. I have known a practitioner reason on the nature of a disease from the supposed effects of a remedy, which, in consequence of the want of confidence in the prescriber's judgment, had actually never been given! Perhaps such cases are of more frequent occurrence than our self-complacency would lead us to suspect. Certainly it is no more than a dictate of common prudence, before we give a medicine the credit of having wrought an amendment in the condition of our patient, to ascertain, if possible, whether the wonder-working drug has actually been swallowed, bearing in mind the humorous couplet,—

"Slept you well?"—"Very well."—"My draught did good?"
"It did no harm, for yonder it hath stood."

I trust, Mr. Editor, I have not trespassed too long on the patience of your readers by making the preceding remarks an introduction to a few suggestions on the treatment of the disease commonly called *phlegmasia dolens*, but which, in reference to its pathology has been more correctly designated as *crural phlebitis*, a disease in which I have too often tested the *modus medendi* about to be detailed, to be deceived as to its real merits and efficacy.

The pathology of this painful malady remained long in obscurity. Dr. Davis, the learned Professor of Midwifery in the London University, is fairly entitled to the credit of having been the first to demonstrate the true condition of the parts implicated in this morbid affection. He proved beyond the possibility of doubt

that this disease is phlebitis. Dr. Lee appears to have improved on the discovery by tracing the inflammation to the hypogastric and spermatic veins, and he thinks it probable that the inflammation takes its origin in the lining membrane of the uterus being left open after the separation of the placenta,—a direct communication being established between the cavities of the veins and the atmospheric air, in a manner somewhat similar to what takes place in amputation and other extensive wounds.*

A careful consideration of the symptoms can hardly fail of corroborating the deductions made from *post-mortem* researches as to the proximate cause of the disease. Of many instances of this form of phlebitis which have occurred in my practice, I have not met with more than one which terminated fatally, and that was a case of sudden death. In several instances, however, the malady was of very tedious duration. At least nine-tenths of the cases which have come under my care have occurred during the winter season. Supposing this to take place generally, would it strengthen Dr. Lee's conjecture as to the origin of the inflammation, viz., the admission of air (and in that case generally of colder air) to the orifices of the uterine veins?

Though the disease be of the order phlegmasiæ, and as such requiring the antiphlogistic treatment, yet general bleeding is seldom called for, and, indeed, the cases are very few in which it would be expedient. The following is the method of cure which, in my experience, has been found of most avail. I direct leeches to be applied to the upper and inner part of the thigh, and along the course of the femoral vein. The number used, and the repetition of their application, of course should be in proportion to the urgency of the case. Next to the use of leeches, I have found no means so efficacious in relieving the severity and abridging the duration of the symptoms, as blisters applied in succession to the back of the leg, from the upper part of the calf almost down to the heel. They should be about three inches in width, and of length sufficient to encircle nearly two-thirds of the limb. I seldom apply less than three, and sometimes I order a fourth. The discharge from the blistered surface is usually profuse, and my rule for putting on a second or third, is a cessation of discharge from, and a continuance of, the swelling below the blister last raised. Under this vesicatory process, there is generally a rapid subsidence of the swelling, as well as a diminution of pain and fever. The benefit obtained from blistering is always more decisive, when used subsequent to the application of leeches, than when tried alone. Warm fomentations of the limb, if of no great avail, are, in most cases, agreeable and soothing to the patient. During the inflammatory stage I prescribe antimonial and saline diaphoretics, with nitre, which is useful, in this case particularly, not only on account of its antiphlogistic properties, but from its action on the kidneys. I give every night at bed-time a grain or two each of calomel and opium—a combination which seldom fails of alleviating the pain, and, if persevered in till it has induced a slight mercurial affection, effects, as in other cases, a more speedy solution of the inflammation.

To keep up at once a gentle action on the bowels, and a determination to the kidneys, I find nothing succeed better in crural phlebitis than two, three, or four drams, of supertartrate of potash, taken every, or every alternate morning. When the febrile symptoms have given way, I add a grain or two of the powdered squills to the calomel and opium at night; and in addition to this, if the case be obstinate, I order a draught to be taken twice or thrice a day, containing fifteen or twenty minims of the tincture of digitalis, with twenty or thirty minims of tincture of cantharides, in order to assist the action of the digitalis on the kidneys.

After having given to foxglove a varied and extensive trial, I have been led to question altogether the expediency of administering it in any case during the presence of active inflammation. It is a little remarkable, that the talented and sagacious physician, Dr. Withering, who first brought this plant into general notice, though he discouraged the exhibition of it in inflammatory affections, at least so it may be inferred from his remark, that "the medicine seldom succeeds in patients with a tight and cordy pulse," yet affirms that this disease, which he designates as puerperal anasarca, "admits of an easy and certain cure by the digitalis." He appears to have considered the malady as a case of dropsy, and it is not improbable that the medicine was administered by him after the inflammatory symptoms had subsided.

When the treatment has not been sufficiently active in the early stage of the disease, a hard swelling of the leg and foot will remain for a considerable time, and in some cases permanently. This is probably occasioned by the deposition of fibrine in the cellular tissue of the limb. The application of camphorated, mercu-

* See Cyclopædia of Medicine, part 16, article "Phlegmasia Dolens."

rial, or iodine ointment, will, in such a state of things, form the most appropriate and efficient remedy. I am, Sir, your obedient servant,

J. SYMONDS,
Surgeon &c. to the Oxford Medical Dispensary.

Oxford, April 5th, 1834.

EXTRAORDINARY AFFECTION OF THE MIND AND FEELINGS,

IN A GIRL, AGED 14.

To the Editor of THE LANCET.

SIR,—Knowing that your very valuable publication is available to all who are desirous of obtaining information in medical cases, and also of communicating matter whereby the talents of the medical profession may be called into action, I am induced to submit the following case to your notice. It has for the last six months been constantly under my own observation, and therefore the statements I furnish are not from hearsay.

The object of the case is a fine, interesting, intelligent girl, of between fourteen and fifteen years of age, who, previous to the last ten months, had resided in the country, when, in consequence of the unavoidable absence of her mother, (her father being dead,) she was placed in the family of a relative, who, it appears from the girl's own statements, had ill-used and neglected her. Being of a very affectionate disposition, and passionately fond of her mother, this treatment preyed violently on her mind, and changed her from a naturally lively temper, to sullenness and melancholy. About a year ago, her mother, having settled in London, felt desirous of having her daughter under her immediate care, and accordingly sent for her; but on the arrangement becoming known to the relations, they endeavoured by every manœuvre to alarm the girl, saying that her mother and father-in-law would ill-use her. This the girl subsequently found to be utterly false, as she experienced the most kind and tender treatment the moment she entered her parental abode. This conduct, so directly opposed to what she had been led to expect, and the sudden transition from neglect to kindness and affectionate attention, for a time more decidedly fixed her melancholy and abstracted disposition,—the girl preferring to sit alone, and sigh and weep, no doubt from reflection on the happy change, apart from observation. From such indulgence of feeling it was very difficult to arouse her.

Five or six months passed over in this manner, with an evident increase of the mental malady, which, indeed, had proceeded so far, that it was considered advisable and necessary by a medical gentleman who was called in to attend her, to apply leeches and blisters to her temples, giving her also powerful drastic medicines, her habit of body being naturally constipated. This, for a very short time, had an apparently good effect; but she speedily relapsed into her former state of reserve, frequently complaining of strange and violent pains in her head, as if something alive was running round it. The medical attendant then recommended that she should be allowed the use of toys, and other proper sources of amusement. Several articles of the most varied kinds were accordingly procured for her, at the first sight of which she was extravagantly rejoiced for a few moments, dancing, and jumping about the room, in the most ludicrous manner, uttering the most unmeaning expressions, and caressing the donor. She then in an instant changed, and totally disregarded both the presents and the giver, and lapsed into a state of absolute abstraction. She subsequently, on such occasions, would begin to talk to herself, and make remarks, which on being repeated to her (her attention being engaged for that purpose) she would never admit having uttered.

During these periods of excitement and abstraction, the most scrupulous care was taken to keep her habits regular; and I should here state that she has not experienced the change usual in females of her age; probably the suppression materially adds to her malady. She generally gets worse on the increase of the moon, after which a change evidently takes place in her system. Of the details of this, however, I have not had sufficient experience to express an opinion.

While in this state her mother took her to a well-known physician in Surrey, who gave her a prescription, which he strongly recommended should be, and which was for some time, strictly and regularly adhered to, but without benefit. He also recommended an immediate change of air. He said he thought her nerves had been grievously affected on frequent occasions. While in his presence, she was perfectly unconscious where she was; and answered his questions rather, as it were, by instinct than reason, being, apparently, scarcely conscious that she had spoken to him. Since then two other medical gentlemen have occasionally seen her, and they admitted that they had never witnessed or before heard of a similar case. On their united recommendation, however

a blister was applied on the nape of the neck, and six leeches to the temple. After the removal of the latter she fainted at least fifty times in rapid succession. This produced an apparent change for a day or two, during which time there were evident symptoms of a suppressed menstruation. After this had in a trifling degree subsided, she began to talk more incoherently than ever, seldom retaining her self-possession for more than five minutes together.

She now arrived at such a state that she lost, and has not since exhibited, except under violence, the sense of feeling. A slap on the naked shoulder, the palm of the hand, and the cheek, or even a pinch on any sensible part, were all equally disregarded. Her sense of hearing also, from the first, has been affected, mostly, as may be expected, when most strongly labouring under the foregoing sensations. So also has her vision; but occasionally in a higher degree, inasmuch as for nearly a month she did not know her own mother, except by taking hold of her left hand, and examining her wedding ring, when she would raise her eyes gradually up, till she saw her features, and then would give vent to the most ridiculous expressions of joy. Her father-in-law she knew by his hands and nails, and myself by my hair and teeth; and on discovering our identity, like ejaculations would burst from her. When told what she had said and done, she would instantly, and apparently with great firmness, deny it.

These and other temporary flights of fancy, and oddities, are ascribed by different persons seeing her, to as many different causes. Sometimes, when speaking to her mother, she addresses her as a perfect stranger, and as one of the opposite sex, saying "Yes, sir," and "No, sir." Her father-in-law (to whom she is passionately attached) she will address as a female stranger, with the simple expression, "Yes, ma'am," "No, ma'am." He is engaged the whole day from home, and if he do not return at the exact time, she manifests the most intense anxiety, looking at the clock or watch, and muttering to herself, "You never do come home, sir." She addresses me in a similar manner, and also strangers, alike indifferent to our persons, though I must remark that she is unconsciously more guarded (if I may use the expression) before strangers.

I add the following circumstances:—She generally talks and starts in her sleep. In the day time she will suddenly fall asleep, even when walking about the house, or in the street, talking to herself the whole time. In the house she will pace from one room to another, without making a false step, or even missing the different doorways, either up-stairs or below, and proceed directly to any particular seat. She will then start up and commence dancing and jumping about, backwards and forwards, avoiding any object that may be likely to hurt her, speaking when spoken to, but generally without reference to the question or remark put to her. Her mother and myself have frequently caught her talking to herself, and have stood before her, without her noticing our presence. Although on such occasions we might not be able exactly to understand, or hear distinctly what she said, yet we could invariably learn, from the expression of her countenance, that she felt and meant to express sudden transports of joy or grief, and the transitions from one to the other would occasionally be so rapid, according to *imaginary* external or *real* internal impression, that it would beggar all description to portray her actions or sensations when so affected. She invariably accompanies these singularities by some inconsistent exclamation, which, on being repeated shortly after, she will firmly deny having used. When her attention seems much engaged, though she may be perfectly silent, it is with the utmost difficulty that she can be induced to state the cause of her sedateness, and if observed to labour under bodily pain, on the question being asked, "What she feels," she almost invariably answers "Nothing," or "Only a very little." Yet it is evident that she repeatedly suffers excruciating pain in the head, the loins, and at the pit of the stomach. She is vastly more susceptible of an angry look or expression than a pleasing one; and should she be a party concerned, she cannot rest till she is satisfied that all is well and happy.

Another almost unaccountable circumstance may here be stated. She maintains an appearance of robust health, though, to my certain knowledge, acquired from actual observation, she does not consume one ounce of food in a day. She appears to consume with the greatest relish, when disposed to eat, bread and cheese; though even that but seldom, and not more than will lie upon a penny-piece abundantly suffices her for a meal. She drinks but little, and chiefly porter. It has been thought that she was afflicted with tænia, as, when eating, she says that she sometimes experiences strange and unpleasant sensations in the pit of the stomach, "as if something instantly and eagerly seized the food when swallowed, and prevented its passage in a natural way." But she is not affected with the

symptoms generally attendant on vermes. She has been treated for tænia, but with no effect, though the sensations are not so violent as they were.

One evening, after the street lamps were lighted, she, her mother, and myself, were standing by the street door, and though the house is situated in a quiet neighbourhood, she imagined that she was walking near the *Elephant and Castle*, and said that she felt delighted at the sight of the coaches and other vehicles that were passing and repassing, making some remark on each succeeding *imaginary* object. At this time we were not moving from the threshold of the door, and the girl stood with her arms around her mother's waist; but she kept moving her feet, as if in the act of walking quick, which her physical strength would not permit. After labouring for about ten minutes under this delusion, she gradually,—by examining the objects around, as for instance, the railing in front, the houses on the opposite side of the street, and other objects well known to her,—discovered that she was still at home, and vented her disappointment by saying to me, "You always come home so soon, sir," or some such unmeaning expression.

In the early stages of her complaint she showed an invincible disposition for collecting or saving money—carefully laying aside all the silver and copper she could lay hold of, saying that it was for her mother. When desired to give or lend any portion of it, she evinced the greatest reluctance to do so. Notwithstanding this disposition, however, a few days after, on being reasoned with on the folly of such a propensity, she became as indifferent to money as she had before been anxious for it. After an interval of some weeks, passed with feelings of indifference about coin, she is again beginning to manifest the propensity,—wanting the money, she says, for a very particular purpose, the nature of which cannot be elicited from her.

She is much alarmed at her own shadow by candlelight, thinking that it is another person of her own sex, who continually follows her. At such times she exclaims, "I do not wish to go with you, ma'am;" "You always follow me, ma'am," or some other such sentence, and after advancing and receding in the part of the room where she observes the shadow, endeavouring to snatch at or seize it, she will retire to her chair, sink into it quite exhausted, and instantly, to all appearance, fall into a profound sleep, remaining in that state for three minutes, or a little more, and then suddenly start up and exclaim, "You always do, ma'am."

After her attention has been firmly engaged, either by her parents, or myself, we are enabled, with some considerable difficulty, to amuse and divert her, but then she will make use of such unmeaning expressions and phrases as would astonish and divert an unaccustomed auditor; though, after witnessing the whole scene, it cannot but call forth in feeling minds the greatest sympathy and commiseration, for who, after witnessing such a heart-rending scene, can turn away indifferent and heedless?

A belief exists in the minds of her parental guardians and myself, that those medical gentlemen who have seen and attended her, do not thoroughly comprehend her case. The variety of their opinions proves this; but not a doubt exists amongst them, that it is one of extraordinary nervous debility, or, more properly speaking, nervous disarrangement.

In conclusion, Sir, I beg to state that if any medical gentleman feels desirous of seeing this afflicted individual, by which means only a just appreciation of the unhappy case can be made, and will generously afford her the benefit of his gratuitous professional aid, a ready opportunity shall be afforded of doing so, and the eternal gratitude of her dearest friends will be excited by it. I shall, Sir, feel infinite confidence in your advice and assistance, as I well know that you are ever ready and willing to render aid to the afflicted. With your kind permission I shall confidentially leave my address with you, so that any communication may be communicated to me, when it shall be instantly attended to. Begging pardon for occupying so much of your valuable attention and space, I am, Sir,

Your obedient servant,

ALFRED LAMBERT.

[Near London], April 14, 1834.

STONY COVERING OF THE SKIN.

To the Editor of THE LANCET.

SIR,—Conceiving that the following very extraordinary case may prove an object of interest to you and your readers, I am induced to submit it for publicity through the medium of your widely circulated and highly valuable Journal.

I have at present, under my care, a man who is nearly encrusted with a stone-like skin, very closely resembling the barnacles of the native oyster, or what is called "rough-casting," so frequently seen

on the outside of lath-and-plaster houses. This singular individual experiences no pain whatever from his affection, and the only inconvenience he suffers, arises from a sense of tightness and weight, accompanied by almost total want of sleep, as the recumbent position causes in him the sensation of lying upon a board thickly studded with nails, or, as he expresses it, "lying on a bag of sticks." The first appearance of this covering occurred about six months ago, since which time it has been rapidly increasing, and little doubt exists in my mind but that, in a short time, if left to itself, the man will become as thoroughly encased in a hard coat as the armadillo or the rhinoceros. I may add that he is rendered totally unable to provide for himself and family. The case being under my superintendence, I shall at all times have much pleasure in communicating on the subject with the scientific and humane. Allow me to subscribe myself yours, very respectfully,

GEO. KITCHING, Surg.

100, Aldersgate Street, April 18, 1834.

LUXFORD RURAL DISPENSARY.

To the Editor of THE LANCET.

SIR,—Among the supporters of medical reform, I have yet heard no one protest against the practice of allowing medical officers in the government pay to settle in private practice. How is this? General practitioners, who are not pensioners, suffer greatly by the custom. I do not mean to deprecate the allowance of half-pay to our gray-headed medical veterans. God knows that in many instances they have earned what they receive dearly enough, but I object to the law which allows them to enter into open competition with the rest of the profession, with so decided an advantage. The ruin which, in some districts, has fallen upon medical practitioners, has been mainly owing to these gentlemen, whom, as a portion of the public, we are made partly to furnish with the very means that undo us. For the satisfaction of myself and a few medical neighbours I have taken the liberty of calling your attention to this subject, hoping that, if not already brought before the Parliamentary Committee, medical men will see the necessity of doing so immediately.

You and your readers must have had a dispensary surfeit of late, and must sicken at the very idea of "self-supporting dispensaries." But if more evidence is yet wanting of the mummery, corrupt management, and mock charity of these institutions, or of the humiliating reproaches that sooner or later fall upon the medical men who are induced to countenance them, I beg to furnish the following facts on the subject.

One of these charities, under the name of the "Luxford Rural Dispensary," was established in this town about two years since, and two other practitioners with myself were appointed surgeons to it. The relief was meant to extend to the villages five miles around, and we had stated charges for visits and journeys to those patients who required home attendance. Those who could attend at the surgeon's house were prescribed for gratuitously. The medicines were dispensed by a druggist in the town, whose shop was called the dispensary. The Duke of Newcastle was the patron, and a whole posse of "reverends" were the vice-presidents; a portion of whom, with the treasurer, formed the committee. For the first year, the medical officers were also included in this committee; but their attendance was soon found inconvenient to the policy of the divines. It happened that a liberal-minded man was elected chairman to the body, but his views did not suit the narrow and partial principles of his brethren. He was consequently obliged to resign, and another was elected, under whose management a by-law was immediately passed to exclude the surgeons from the committee. Another followed which went to reduce the allowance for journeys, and thus insult after insult was heaped on the medical men at every meeting, while they were silenced into obedience by the fear of a sweeping opposition, which they were told the "patron" of the dispensary would exert all his energy to introduce, in case any refractoriness of spirit was shown. It was evident that such an institution could not stand long under any disguise. Accordingly towards the end of the first year it began to look wan and sickly, and many of its warmest supporters could already discover "something rotten" in it, silently determining to finish their connexion with it as soon as possible. Another half year passed on, and the poor thing grew worse. Still, however, it continued to linger on from month to month, as if unwilling to sink into total oblivion, like all vicious and depraved habits, clinging the more obstinately to life, in proportion as that life was less worth preserving.

The select clerical committee at last became alarmed for their offspring, and many consultations were held, while governors, whose forewarnings had hitherto been despised by this inflated body, were now pestered with letters, praying them to

devise some method of breathing new life into the unfortunate bantling. Various efforts were, consequently, made. New by-laws were enacted, and old ones amended. The medical bills were pryed into with searching eyes, and every paltry manœuvre was adopted to lessen them. The helpless brat was forced from its original drug shop to the more private apartment of one of the surgeons, who had proved himself most patient under the mandates of its guardians.* Here it was nursed with affectionate regard. As usual in such cases, while in daily fear of its death, the governors it is said made the most exorbitant promises, and promised the highest honours, to its protector in case of its recovery. He was to be dispenser, secretary, surgeon, physician, obstetrician—everything to the dispensary. But all would not do. The misbegotten thing fell into the grave on the last day of the second year. To furnish the neighbourhood with an excuse for the fatal event, the clerical corps laid its death on other shoulders. Its constitution, they said, was sound and untainted, but "the doctors killed it," cried they, from street to street, and from lane to lane, while the disinterested looker-on smiled to himself, and repeated "the doctors killed it."

In conclusion, I wish for a moment to draw the attention, if possible, of the Parliamentary Committee to the system of arrangement pursued by parishes in this neighbourhood, in supplying medical attendance to their paupers. The plan of contract is disgraceful enough, both to the medical men concerned, and to the parishes themselves; but at any rate this effects *something* for the poor, whereas there are some parishes in this quarter which refuse even this method of relieving their sick; and in one parish particularly in the course of the last year, and during the prevalence of a highly contagious and fatal malady, I can prove that paupers belonging thereto were allowed to die without receiving any medical attendance whatever.

I am, Sir,
Your obedient servant,
W. J. Cooper.

Luxford, April 20th, 1834.

* For the honour of the profession, it is but justice to mention, that this was a young man who had not been long in the town, and who was included among the medical staff some time after the dispensary was established, so that he may readily be excused for taking an easy method of ingratiating himself with its rulers.

DUBLIN COLLEGE OF SURGEONS.

To the Editor of The Lancet.—Sir, Like all the other medical institutions of these countries, the Royal College of Surgeons in Ireland is soon to be put on its trial. Without doubt, no act of cunning, diplomacy, or even jobbing, will be omitted by the interested parties, to make this corporation appear to be one of spotless character, and a worthy type of all future reforms and amendments. Already, I am informed, spies and emissaries are at work at the scene of action, in order that no opportunity may be lost of substantiating "things as they are," and of throwing dust in the eyes of all investigators of the truth. But, sir, however these men may exercise their honourable functions, it is an easy matter to prove that this body is not what it ought to be nor what it was; nay it has lapsed lamentably from what it was, and is now merely a private joint-stock school company, to the private interests of which are sacrificed all the energies and even the funds (for this school does not maintain itself) of the college. Scarcely any other topic enters into the discussions and deliberations of its meetings. It is no feeling of mere hostility that prompts these observations. I freely admit the great extent of benefit the college has accomplished for infant science, the profession, and the public in Ireland, by developing and reducing to practice a liberal and scientific course of education, whereby it has formerly given to the community as safe, useful, and well-informed a body of practitioners as exists in the world; I freely admit the high station it *has* hitherto occupied, but it is a mistake to suppose that this is all the duty it has to perform. A host of practitioners, however well qualified, should not be abandoned to the horrors of precarious existence which beset them, yet this the college does: nay, more; it takes measures against their interests, and endeavours to tie their hands from the only means left them of acquiring bread; and, to crown all, treats them with insolence and contumely if any of them have the spirit to address them in the language of indignant, manly, but moderate remonstrance.

Is it enough to educate a practitioner? Is it not the bounden duty of the college also to watch his career in life, to defend and maintain his rights, and to see that he maintains and defends the honour and dignity of the college? And why is all this totally neglected? Because the college has abandoned itself to the aggran-

disements of monopolists. Why should the funds of the college be squandered on the school? Why should they merely enrich the professors? Whence comes it that neither member nor licentiate, unless he be one of the favoured few, "creta notati," designed for future promotion, feels relationship by blood or honour with his *alma mater?* Simply because his interests are disregarded or sacrificed to, and his funds lavished upon, the enrichment of an oligarchy. But is it requisite that the college should put its hands to the manipulations of education at all? It is not requisite, and is the melancholy and prolific cause of vast mischief. Its interference acts as a drag on the advancement of professional science; it is the source of much bitter invective and ill-will; the cause of a profligate waste of money; the means of exclusion from an honourable independence, of many a teacher who is fully as adequate, if not more so, than our present professors; and the unhappy apple of discord amongst the members. I am, sir, your obedient servant,

M. B. O.

Dublin, April 13th, 1834.

MR. WEISS AND MR. FERGUSSON.

To the Editor of THE LANCET.

SIR,—I once more intrude upon your kindness to beg the favour of your insertion of this letter, as it involves a consideration of which I am as regardful as of my own reputation, though it seems I am not considered so,—the respect due to the feelings and character of a member of the medical profession. I remain, Sir, your obedient servant,

JOHN WEISS.

TO MR. FERGUSSON.

SIR,—The tone of your letter, and the handsome manner in which you make mention of me in the latter part of it, make me anxious to assure you that I had no other object in view than a vindication of my claim to an invention that—not having the pleasure of knowing you—I presumed you had copied, in an altered form, without acknowledgment. "Personal abuse" of you, or of any one, would be as injurious as it is distasteful to me; but my feelings are quick, and, writing under their influence, I give, perhaps, too forcible expression to them. In this instance, I regret it particularly, for I now feel convinced you had no intention of doing me an injustice.

As regards Charriere's instrument, not having seen it, I can only say that mine is entirely my own invention, and it will be found to have been the first of its kind. The priority of my instrument will be best proved by the following letter from Mr. Brodie, which will, I trust, establish, beyond all question, the validity of my claim. The Baron Heurteloup certainly increased the facility of the instrument by substituting a hammer for the screw, but I have still further improved it by making it to act either with the screw or hammer, according as the circumstances of the case may require.

With respect to the comparative advantages of the rack and the screw, it would be out of place to enter into a discussion of a point on which we are naturally at issue; it is for the profession to decide between us; and to enable both you and the profession to form a better judgment of the relative merits of the two instruments, I will take the earliest opportunity of transmitting one of mine to an instrument-maker in Edinburgh; and if after having tried it, you should think more favourably of it, I flatter myself that you will give me the benefit of your change of opinion. I am, Sir, your obedient servant,

JOHN WEISS.

Strand, London, 21st April, 1834.

Copy of a Letter from Mr. Brodie.

"At the request of Mr. Weiss I feel pleasure in stating, that it is now above eight or nine years ago that he showed me a curved instrument which he had invented for crushing the stone by the force of a screw, and with which he broke a very hard calculus that I gave him to try the instrument upon.

"I objected to it at the time, in consequence of the violence with which the pieces of the calculus separated, considering they might injure the bladder, but recommended Mr. Weiss to make some alterations in it, which might make it more fit to be used on the living person.

"B. C. BRODIE.

"London, January, 1834."

PETITION OF THE ROYAL COLLEGE OF SURGEONS IN LONDON,

AGAINST THE GRANT OF A CHARTER TO

THE UNIVERSITY OF LONDON.

TO THE KING'S MOST EXCELLENT MAJESTY.

The Petition of the Royal College of Surgeons in London,

Showeth,—That by charter, granted by your Majesty's royal predecessors, this College was incorporated for the advancement of surgery, and for the examination of surgeons, with the power of grant-

ing them a diploma attesting their ability.

That your petitioners have expended large sums of money in the reception and display, in the preservation and augmentation, of the Hunterian Museum, and in rendering accessible and useful to the public, so as to advance to the utmost of their power, those great scientific and national objects, which were contemplated by your Majesty's Government, and by Parliament, in intrusting the Museum to their care; also in making, and constantly increasing, a collection of books, not only in all branches of medical science, but in various auxiliary departments of knowledge, and in opening it freely to the scientific public, as well as to their own members.

That the Museum and Library are attended with a great annual expenditure, entirely defrayed from the funds of the College, and that they could not be maintained in their present state of public usefulness and efficiency if those funds should experience any material diminution.

That in fulfilling the important duties intrusted to them by royal charter, your petitioners have constantly endeavoured to improve the education of surgeons, to advance the healing art, and to uphold the scientific character of the country. They have the satisfaction of believing that these efforts have been successful; they do not hesitate to affirm that the members of this Royal College have contributed very largely to the great improvements which surgery has received in modern times, and that, whether we regard the intelligence and skill of the body generally, or the knowledge and public services of individuals, English surgeons are not inferior to those of any country. The diploma of the College is held in such high estimation by the public, that nearly all who enter the surgical profession consider it indispensable to their success; and its possession is required, almost invariably, as a condition of eligibility to public surgical appointments of all kinds.

Your petitioners having heard that certain persons acting on behalf of an institution called the *London University*, have applied to your Majesty for a charter of incorporation with the power of conferring medical degrees, humbly submit to your Majesty, that the grant of such a power to that institution, while it would infringe the chartered rights of your petitioners, would be injurious and unjust to the other medical schools of the metropolis, which your petitioners are bound to protect to the utmost of their ability, from a long experience of their efficiency as instruments of professional education; and that it would consequently be highly disadvantageous to the public.

Your petitioners having heard that the liberation of a large class of your Majesty's subjects who dissent from the established church, from the inconveniences under which they labour in consequence of their exclusion from the English Universities is alleged as a reason for granting to the *London University* the power of conferring degrees, beg leave to represent to your Majesty that no religious distinction is observed in conferring the diploma of this College.

Your petitioners humbly submit to your Majesty's gracious consideration, that the institution which is called the *London University*, resembles the ancient and venerated universities of England only in name; that it is, in fact, a joint-stock association, established by the subscription of money in shares, which may be bought and sold in the share market. When first opened, it was under the general direction of a council, and the immediate superintendence of a resident head called the 'warden,' and it thus presented to public view the outward semblance of academic arrangement and discipline. These forms have been materially changed, and the office of warden has been altogether abolished. The institution having spent all the money originally subscribed, has already fallen into pecuniary embarrassments, so that, according to a printed document, issued by the Council, the session could not have been opened in October 1832, without the assistance of a loan from some proprietors, who have therefore a manifest pecuniary interest in the success of that application for a charter, which they have been particularly active in promoting. It has since been found necessary to raise a further supply by way of mortgage. The consequence is, that the original 100*l.* shares are now at a discount of 75 per cent., so that, for the sum of 25*l.*, a person may become a proprietor of this institution, and have a voice in the appointment of professors, and in the granting of the proposed degrees.

Your petitioners humbly submit that a fluctuating body of shareholders amounting to above 1000, especially when the shares may be bought for 25*l.*, is unfit, by its very constitution, to exercise the powers now solicited on behalf of the *London University*; that this establishment, even if its constitution were unobjectionable, is entirely deficient in the essential requisites of security and stability, and can only be regarded as an experiment, of which the result is at present extremely doubtful.

In consequence of the state of the finances, the Council of the University,

before the opening of the session in 1833, withdrew from further pecuniary responsibility, by giving up the control of the schools in a great measure to the professors, and receiving from them a guarantee to the amount of the estimated annual expenditure. Thenceforth, therefore, the medical and surgical department of the London University can only be regarded as an association of teachers, conducting the school as a speculation of their own, superior in no respect to the other medical schools of London, but inferior to most of them in not possessing the means of that practical instruction at the bed-side of the sick, without which a due knowledge of medicine and surgery cannot be acquired. On the other hand, the previously existing schools of surgery, connected with the great hospitals of the metropolis, possess the advantages of a well-organized system of instruction, both in precept and in practice; in them the great body of English practitioners have been educated, and their teachers have attained a degree of celebrity as public men, to which the high character of English surgery may be ascribed.

Your petitioners therefore humbly submit, that the association of medical teachers in the *London University* has no claim to any superiority of power or privilege over the other medical and surgical schools of London; and that, to give to the former distinctions or privileges which are denied to the latter, would involve the double injustice of unfair preference and unmerited exclusion.

Your petitioners beg leave to represent that large sums have been expended in founding and supporting the medical schools of the great hospitals in London, in erecting suitable buildings, and in providing museums, libraries, and the other requisites of professional education; that property to a considerable amount is invested in these establishments, in which gentlemen of abilities, knowledge, and zeal, are employed as teachers. Among these schools, which depend for their success merely on the talents and exertions of their teachers, and on their respective advantages in other points, an honourable competition exists, conducive to the promotion of knowledge, and advantageous to the public.

Your petitioners beg leave to express, in the strongest terms, their serious apprehension of the public disadvantage that would result from any measures calculated to derange the present efficient system of medical and surgical instruction, especially from the conferring on any one school a monopoly of power, and thus degrading and injuring the other institutions.

Your petitioners are firmly convinced that the occupation of teaching, and the power of examining and conferring degrees, ought to be exercised, as they now are, by distinct institutions; and that the union in one and the same institution of these discordant attributes, must be attended with danger to the public welfare on the numerous occasions in which the interest of the teacher and the duty of the examiners would interfere with each other.

Your petitioners therefore most humbly pray that your Majesty will not grant to the institution, which has assumed the name of the *London University*, the power of conferring medical degrees; and they further pray, that if the expediency of such grant should be referred by your Majesty to the consideration of your Majesty's most honourable Privy Council, they may have the opportunity of being heard by counsel on the subject matter of this petition.

THE LANCET.

London, Saturday, April 26, 1834.

In the *Times* of Saturday last, April the 19th, there appeared under the head of "Court Circular," the following paragraph.

"A number of the Lords of His Majesty's most Hon. Privy Council have been summoned to attend a committee of their Lordships on the 24th of the present month, to hear counsel in support of the petition of the London University, praying for a charter. The Archbishop of Canterbury, the Archbishop of York, the Bishop of London, the Cabinet Ministers, the Lord Chief Justice of the Court of King's Bench, the Lord Chief Justice of the Court of Common Pleas, the Lord Chief Baron of the Exchequer, and the Chief Secretary for Ireland, have received summonses."

Notifications to a similar effect having been published in other journals, we must infer that their exists, on the part of the Government, a determination to bring the University-charter question to a definitive settlement. As an advantageous auxiliary to the arguments of counsel in support of the claims to a charter, the Senate of

the University has selected the present as the most appropriate time for publishing an address, explanatory of the grounds on which the Council found their pretensions to a charter.*

The tone of this address is in the highest degree favourable to the character of the institution;—a liberal spirit pervades it throughout; the style of its composition is correct and lucid; and the points in debate are well arranged and ably supported. In the second paragraph we are introduced to the chief bearings of the question, thus:—

"It may be presumed that no opposition would be offered to the prayer of the University if it sought merely a charter of incorporation. The opposition is offered because it seeks to be incorporated under such a name, and in such a manner, as would convey to it a power of conferring degrees."

This is a perfectly candid statement of the question at issue. Had the University sought for a charter of incorporation merely, no motive for opposition on the part of Oxford or Cambridge could have been induced.

But is it quite certain that, even now, the strongest hostility to the grant is evinced by the two English Universities? We propose this question, because we have been led to understand that the managers of the Scottish Universities have endeavoured, by every manœuvre, to render the application to the Government and the Privy Council an unsuccessful one. Whether this report be founded on fact or not we are unable to state, but it must be acknowledged that the Colleges of Physicians and Surgeons in London are hostile to the grant, and in that hostility are joined and supported by the whole of the lecturers who are attached to the medical schools of this metropolis.

Their opposition has arisen on what is considered by all monopolists to be a legitimate ground,—a feeling of selfishness. The private lecturers, being recognised by the examining bodies, are monopolists in *their* way. The hospital teachers connected with the chartered eleemosynary institutions, are, many of them, double monopolists, and, consequently, believe that they have a double interest at stake, for many of them already fill the seats of office in the College of Surgeons. Ought, then, an hostility springing up in such quarters, and supported on such pretensions, so to weigh with the Government as to induce the ministry to refuse the grant of a charter to the University? We think not, because it is perfectly clear that the interests of the public form no item in the arguments of the enemies of the University.

But the question must be considered under a more comprehensive view. The private objects and petty jealousies of recognised teachers must be put aside, as demanding, while investigating this subject, only an insignificant portion of our attention, and we must go at once to the main point, namely,—Is it of importance to the community that the University should enjoy the privilege of granting degrees under a charter conferred by the Crown?

Frankly, then, we confess, that we cannot discover in what way the *public* can be benefited by the grant of a charter to the University, constituted as that University now is; and, further, we are decidedly of opinion that if the crown were to confer upon the professors of that institution the privilege of awarding medical degrees, the possession of that privilege would, at no distant period, prove in the highest degree injurious to the interests of the professors themselves. What, we repeat, can the public gain by the extension of the privilege of medical degree making? The proprietors of the University and the public must be aware that there is no preroga-

* Address from the Senate to the Council in support of the application of the University for a Charter. London. Taylor. pp. 15.

tive of the crown which enables the King to alter the *law* in relation to medicine, or to any other subject. His Majesty, therefore, can only award certain privileges in *accordance* with the law *as it now stands*. Hence it follows that no degree which the King may enable the University to grant, can confer on the possessors of that degree the right to practise medicine in any part of his Majesty's dominions. In short, the medical graduate of the University could not dispense a dose of senna-and-salts without subjecting himself to the liability of paying a penalty of twenty pounds, under the provisions of the Apothecaries Act of 1815.

What solid advantage, therefore, would the degree confer on its holders? None, of which we know, in the existing state of the law, and surely, under a reconstruction of our medical statutes, monopolies will not be sanctioned, whatever may be the excuses for establishing them, either in universities or in hospitals.

When, therefore, it is considered, that the degree will at best be merely an honorary distinction, we cannot see why the University should not be content, under its charter of incorporation, with the power of conferring degrees in arts, to which may be added such other titles of distinction as the endowments in finance, science, and literature, of the professors and senate, may make it convenient to bestow.

In offering these remarks, our attention is directed to changes which must take place within a very few years with respect to collegiate education generally, and we cannot forget that the degree-making system at the whole of our Universities is one which has been conducted on such loose principles of propriety, that it requires a speedy and thorough emendation. Nay, it must not be disguised that it has been a system of fraud, of delusion, and that it has gone far towards the establishment of an aristocracy of wealth, to the rejection, insult, and oppression of the most meritorious of the labourers who have toiled in the fields of literature and science. Why, in the name of all that is liberal, is knowledge deemed contraband if it be not acquired in certain seasons, on certain spots, and at a given cost? If the charter of the King is to be made an instrument for conferring literary and scientific distinctions, why are the admissible applicants to be restricted to those students who happen to pay their fees into the coffers of some particular institution?

It may be contended, that where there is no collegiate residence, there can be no acquaintance with, and no security for, the maintenance of the morals of the student; but surely we are not to be told in the nineteenth century that the discipline of a University is the safest guarantee of a virtuous course of conduct! The non-residence of students at the University of London, may be regarded as one of the advantages of that institution,—that is, if an opinion is to be formed from what has been too frequently the fruit of a domiciliage at Universities elsewhere. Thus, it is observed in the Address to which we referred at the commencement of this article, that "the education of the student "is brought to the very threshold of his "home; and he may avail himself of it "without sacrificing the inestimable be-"nefits of domestic intercourse and pa-"rental superintendence."

Should the University be empowered to grant degrees in arts, we have no security that the candidates would be received at our medical colleges, or at our inns of court, upon equally advantageous terms with the graduates of the favoured Universities of Oxford and Cambridge. Is it not clear, then, that a *new* law with respect to the government of the whole of our academical institutions is required, in order that rewards for a knowledge of sci-

ence and for learning may be distributed justly, and that all unnecessary barriers and restrictions should be for ever broken down and destroyed?

With respect to medical degrees, we would suggest to the Senate and Council of the University, that the power to grant them in connexion with existing arrangements, may prove most detrimental to the medical department of the University. If the charter should contain such a provision, it will necessarily specify those subjects into which the examination shall extend; and it is quite obvious that the conduct of the examination will not be confided to the professors exclusively. They would necessarily be assisted in their scrutiny by assessors, or visitors, appointed by Government. The examination, therefore, although it might not be of the most severe description, would, nevertheless, be sufficiently comprehensive to be contemplated with a feeling of dread by the generality of students. Hence, if the degree is to be merely an honorary distinction, and is to secure no legal privilege, how many students will be found to encounter the risk of rejection by seeking to obtain it. In such a struggle a defeat would be a severe disgrace, while victory would bring no advantage.

In selecting their medical schools, therefore, the students, it may be presumed, would soliloquise with respect to that of the London University, nearly as follows:—

"Now that our articles of indenture-
"ship are expired, we have to pass two
"or three years in London. The *London*
"*University* sounds well; it has excellent
"teachers, and there are, we understand,
"admirable accommodations for the pu-
"pils. We should like it above all other
"places, but we have no desire to undergo
"the examination for the degree; yet if
"we attend the medical school of that in-
"stitution, and obtain no degree, it will
"be said that we were rejected at an ex-
"amination for it; or if we allege that we
"did not seek to obtain the degree, it
"will be at once contended that we knew
"that we were incompetent to undergo
"the examination. We, therefore, shall
"select a school where there exists no
"such degree, and where no such slur
"can be thrown on our attainments."
The time has passed when the examinations for degrees can be conducted as so many farces. Henceforth, if privileges be conferred by law, the public will not be backward in demanding that the privileged parties shall afford sufficient securities for the adequate fulfilment of the statutes.

When, therefore, it is borne in mind that the degree of the University cannot confer the right to practise, and, further, that the examination for that degree must be enforced before competent judges, to be provided by the charter, we would inquire of the SENATE whether the exercise of the privilege of granting medical degrees might not prove ruinous to the medical department of the institution.

The SENATE, with characteristic liberality, have made the following statement in their address:—

"If, after the investigation of the Committee of the House of Commons, it should be enacted that these degrees or certificates of superior attainment should be granted only by a central Board of Examiners, and that the existing Universities should be deprived of the power of conferring them, the University of London would not desire to possess a privilege confided to no other body of teachers, and if in the previous enjoyment of such a privilege, would be ready to resign it. But if this be the plan adopted, the Senate is of opinion that the examinations for conferring degrees should be entirely separate and distinct from the examinations for granting a license to practise; and the candidate for a medical degree should be required to give full and satisfactory proof of a sound general education."

As a Committee of the House of Commons is now sitting on medical affairs, would it not be better to wait for a few

months, than to create any new legal interest in connexion with medical education, practice, or government, at a time when it is utterly impossible to make *any* arrangement which is *likely to be permanent*? Since, therefore, it is acknowledged by the SENATE (p. 3) that "the mere possession of a charter would tend very "greatly to ensure the permanence of the "University," with such a charter let the Senate and Council for the present be content, relying with confidence on the exertions of the professors for the success of the institution. If the claim for the granting of degrees in law and medicine be withdrawn, and a charter be obtained confirming the privilege of awarding degrees in arts, the University will succeed in receiving under the sign manual, all that it will be advantageous for it to possess at the present moment. But, as we have already stated, no one arrangement can now be effected with a view to its *permanency*, as it is morally certain that the whole of our public academic institutions must be placed under that wholesome restraint which can arise only from the institution of a new code of laws.

SINCE the preceding article was written we have been furnished, by order of the PRESIDENT of the College of Surgeons, with the document entitled "PETITION," &c., inserted at page 158 of our present number. We have now neither time nor space for lengthened comment on that document, though we cannot refrain from observing that the very first sentence contains a statement which is remarkable for its inaccuracy. The document is entitled "The petition of the *Royal College of Sur-*"*geons in London*, against the grant of a "charter to the London University."

What blundering fool could have penned such a sentence as this? The Royal College of Surgeons consists of the President, the Council, and upwards of *six thousand Members*. The petition, therefore, is from the majority of the *Council*,—no portion of the *six thousand* other members of the College having been consulted on the subject. This is tolerably impudent. But mark the following. The petitioners humbly submit, "that the grant of such a "charter to the London University would "be injurious and unjust to the other "medical schools of the metropolis, which "your petitioners are bound to protect to "the utmost of their ability."

Oh, the brazen varlets! "Bound to *protect* the schools of the metropolis?" Why, is it not notorious that they repeatedly endeavoured to *destroy* all the private schools in the metropolis which were unconnected with hospitals,—all, in a word, except their own establishments,—and even enacted one by-law with a view to ruin the medical department of the University itself? But let that pass. The Council of the College—twenty-one out of upwards of six thousand members—have thought proper to enter the field as petitioners against the University, in order to "protect" the hospital and other medical schools of the metropolis. Why, gracious powers, fourteen out of the twenty-one members of the Council actually belong to those very hospitals and medical schools on behalf of which they appear before the Privy Council as disinterested, patriotic supporters!

The names of these gentlemen, and the institutions to which they belong, are as follows:—

Sir ASTLEY COOPER, Guy's Hospital.
Sir WM. BLIZARD, London Hospital.
Mr. ANDREWS, ditto.
Mr. LYNN, Westminster Hospital.
Mr. WHITE, ditto.
Mr. GUTHRIE, do., and Medical School, Windmill-street.
Sir ANTHONY CARLISLE, Westminster Hospital.

Mr. Brodie, St. George's Hospital.

Mr. Keate, ditto.

Mr. Lawrence, St. Bartholomew's Hospital.

Mr. Vincent, ditto.

Mr. Earle, ditto.

Sir C. Bell, Middlesex Hospital.

Mr. Travers, St. Thomas's Hospital.

It may be fairly presumed that the above gentlemen are exceedingly anxious to "protect" the hospitals and schools to which they belong, from any change which may tend to lessen the fees which are annually paid into the coffers of their establishments.

It is just to observe that several of the gentlemen above named may have refused to sign the petition. It must, however, be recollected, that it has received the support of the majority of the Council, fourteen members of which are connected with the medical schools of our hospitals.

The Commissioners of *Chelsea Hospital* have politely intimated to Sir James Mc. Gregor that it is not their intention to make any alterations in the medical arrangements at Chatham.

The duellist at the *Westminster Hospital* was strongly opposed during the late contest by the whole of the medical officers of that institution, except his grateful friend Mr. Guthrie.

The following letter was received by us from Mr. Costello on the 17th inst., but we could not conveniently publish it in the last number of our Journal. It contains a plain statement of the case of Fisher up to the period when Mr. Costello discontinued his attendance, and at that time the man was following his occupation as a labourer.

To the Editor of The Lancet.

Sir,—In the last number of the *Medical Gazette* my name is introduced in connexion with a case of stone, which was operated for in St. George's Hospital by Mr. Hawkins. With what occurred in the hospital I have no concern; but it is important for me to correct the impression which even this incidental mention is calculated to produce. It is stated that I operated by lithotrity *nine times*, and that subsequently the patient Fisher was received into St. George's. This is an error. I find from my notes, that I used my instrument five times, and perhaps there was one sitting which had not been set down. This added will make six. The inference from the article in your journal is, that Fisher, in applying to St. George's, had lost confidence in the efficacy of lithotrity, or that he had been tired out by the number of applications of the instrument. This, however, was the very reverse of the fact, as you will learn from what follows.

I was applied to by Sir J. Chapman on behalf of Fisher, who then was, and had been for two years, unable to work as a labourer and thrasher. I operated on him in the presence of between sixty and seventy practitioners of the neighbourhood, in the town-hall of Windsor. It was ascertained that the bladder contained several calculi of the size of a pigeon's egg. The second operation took place also at Windsor; the subsequent applications were made at considerable intervals, in Egham, at the houses of Messrs. Furnival and Gilbertson, surgeons.

Fisher resumed his work as a thrasher after the second sitting, and to every sitting afterwards, he came from his work, and returned to it, a distance of between three and four miles. His general health was restored, and his sufferings had ceased almost altogether when I last saw him. After the last sitting I told Mr. J. Furnival that if Fisher did not void all that remained of the broken-down calculi, I should be ready to come down on his dropping me a line at any time. I was never applied to afterwards on behalf of the poor man, and I concluded he was cured.

I learned from Fisher's wife some time ago that when he began to get bad again he went into Egham, where he was told that I had left England, and was living in France. He often said to her, if he could see me once more he should be all right. His sufferings increased, and he was persuaded to go to St. George's Hospital, on the assurance that the surgeon of the hospital *would employ the same means that I had used.*

This is a statement of facts which cannot be controverted, and I believe a simple appeal to the facts will not inflict any injury on my professional reputation. On the conduct of other surgeons it is not my desire or object to comment.

I am, sir, your obedient servent,
W. B. COSTELLO.

38, Bruton-street, Berkeley-square.
April 17th, 1834.

Mr. COSTELLO, therefore, has furnished the first part of the case. The second part has been supplied by Mr. CÆSAR HAWKINS, and was published on the 12th instant in the subscription journal of the BATS. As Mr. HAWKINS has accused us of attacking him, we will here insert the statement made by himself, without at present adding one word of criticism:—

"Not very 'lately,' but in June last—not quite a year ago—a patient named John Fisher, aged fifty-seven, was admitted into St. George's, under the care of Mr. Cæsar Hawkins, for stone in the bladder, from which he had suffered during two years. He stated that he had sometime before been under the care of Mr. Costello for six months, who had nine different times performed an operation for the purpose of grinding or reducing the calculus. At the time of his admission his health was so far broken, that the introduction of a sound almost always brought on rigors, and some degree of fever. It is thus apparent that he was not a favourable subject for any farther operation, and, *à fortiori*, not fitted for experiment. We therefore feel convinced it will gratify the benevolent mind of our contemporary to learn, that *no experiment* was tried, and that *no new instrument* was used after his admission into the hospital. As there was no reason to suppose that the calculus was small, it was decided that it should (if found practicable, without using force) be withdrawn with the forceps through the urethra, or, at all events, into the perineum, and then cut down upon in that situation. This purpose, however, could only be partially accomplished, owing to the unyielding state of the parts, through which it was found that it would be impossible to make the instrument, having the stone between its blades, pass without violence. An incision was therefore made into the perineum upon the forceps, which still grasped the calculus; a small portion of the prostate was divided, and the concretion, which was about the size of a hazle-nut, removed by the wound, the forceps being, of course, withdrawn through the urethra in the usual manner.

"No local symptoms of importance occurred, and the wound went on well, but the poor man died on the thirteenth day after operation, *from the formation of abscesses in the joints*, a large collection of matter being found in the right shoulder, another in the knee, and several small depôts in the hands and fingers."

THE "REFUTATION OF SOME MIS-STATEMENTS RESPECTING THE UNIVERSITY OF EDINBURGH."

Published by Maclachlan and Stewart.

(*From our Edinburgh Correspondent.*)

THE attack made on the medical faculty of the Edinburgh University by the private teachers, was more like a charge of the imperial guard at Austerlitz than any ordinary assault, and so destructive was the fire of MACKINTOSH'S artillery, that the professors were unable for some time to recover from the impetus of his heavy shot. The call to rally, however, induced a few men more bold than the mass of the discomfited troops to turn round and fire off this "refutation." It was necessary to show some fight in return, and on this momentous occasion the medical faculty made choice of a few men to lead the "forlorn hope," who, from the irritation more especially occasioned amongst them by the powder and ball of MACKINTOSH'S ten-pounders, were most desperate in determination of revenge.

JOHN THOMPSON, the oldest and most expert workman in the "chair manufactory," and DRS. TURNER and CHRISTISON, and Mr. SYME, are the "refuters" appointed by the faculty of the University, and the pamphlet now before us may be considered as the work of the united efforts of these four great powers.* Their production is even a worse failure than might have been anticipated. It was supposed

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* It is with regret that we see the names of the authors of the excellent works on Inflammation and Toxicology mentioned in connexion with such disreputable proceedings.—ED. L.

that, strong and circumstantial as were the details in the "Examination into the declining state of the medical faculty of the University of Edinburgh," at least *some* of the most grave charges and statements would be satisfactorily answered. No little surprise, therefore, has been excited on finding that the demi-official "Refutation," in place of entering fully on each point of accusation, merely contains sweeping and general observations, and endeavours to correct some paltry details relative to class and graduation fees, while, on some important points, the truth is both perverted and concealed. Not a single explanation, far less a contradiction, is offered in it, relative to the assertion that four successive chairs have been created by and for Dr. JOHN THOMPSON, with the aid of his able political associate and Whig friend, the private secretary of Holland House! Not a word is said of the six hereditary professorships! Not a word is said of Mr. SYME's purchase! Not a syllable appears bearing on the intrigues by which the student has become taxed by compelling him to pay for admission to one class after another! In short, the impotency of this "Refutation" has given more importance to the "Examination" than many were at first disposed to grant it, and though the latter pamphlet was probably written under the influence of private pique and personal disappointments, its character for truth in its more important details, certainly is not shaken by its adversary.

After some prefatory observations which are not remarkable for the elegance of their composition, the authors of this refutation remark :—

"Since the University first published a curriculum of study, all the departments of medical science *have been greatly enlarged*, and it has become necessary to subdivide the duties of the professors. Botany has been separated from Materia Medica, Surgery from Anatomy, and Pathology from the Institutes of Physic."

Now what is the fact? There has been a Professor of Botany for nearly a hundred years, and though we are far from denying the propriety of separating surgery from anatomy, yet this was not done until Dr. THOMPSON, forsooth, found it *convenient* to make the extra chair, and neither was a chair of pathology thought expedient until the said JOHN THOMPSON pointed out the necessity of it, and convinced the Whig Cabinet of the propriety of seating himself therein.

"Practical study," the four authors proceed to say, "has also been *greatly extended*, and in addition to the clinical lectures on physic, clinical lectures on surgery and courses of practical anatomy and practical chemistry have been established."

This sentence is framed in the same jesuitical style as the former. The fact is, that the clinical lectures on physic have been given for more than fifty years, and have always been included in the curriculum. The clinical lectures on surgery have been delivered for nearly the same period, though they have only of late been introduced into the curriculum; by which job Dr. THOMPSON decently managed to afford a kind of hush-money to the then Professor RUSSELL, in order that he might carry on his own business of chair-making successfully, as well as obtain Mr. RUSSELL's acquiescence and support in compelling the unfortunate students to attend his pathological lectures. Had it not been for this ingenious manœuvre of Dr. THOMPSON, Mr. RUSSELL's chair, instead of bringing him, on his retirement, an annuity of three hundred pounds, would probably not have fetched thirty pounds a year at the hammer.

"The great advance," say the four in one, "which has been made in all the departments of natural history, (a study so useful to every medical man, especially *in foreign countries*, and so essential to the acquisition of *correct* and *general* ideas respecting the structure and functions of animals,) led to the *foundation* of a professorship of this subject; and the complicated questions connected with legal investigations, which the improved state of medical science is calculated *to determine*, have shown the necessity of a separate chair for teaching medical jurisprudence."

The fact is, that there has been a professor of natural history in the University of Edinburgh from a very early period, and the present professor has occupied the chair nearly thirty years; but the writers of the paragraph evidently wish to make the reader believe that this chair had been, like the former, but lately created, from

the circumstance, as he expresses it, of all the departments of medical science *having been greatly enlarged!* Though there has long been a professor of natural history, it is true that the student has only very lately been *compelled* to pay for it. And for this *benefit* he is also indebted to Dr. THOMPSON, who, crafty man, in order to get his own chairs dove-tailed into the curriculum, macadamised the path with more contributions of gold dust from the students, by getting them *compelled* also to "attend natural history." There was something more indecorous in this than in any other of his manœuvres, and it has created great dissatisfaction and complaint, not only for these reasons, but also because Professor JAMESON never has taught, and probably never will teach, any other branch of natural history than mineralogy, a science which, however interesting in itself, can never be sustained as a necessary branch of medical education.

"The University of Edinburgh," our authors declare, "has often been blamed for following too slowly the progressive advance of medical improvement in the additions to its curriculum, though it has taken the lead of most other licensing bodies in this respect, and, in consequence, confers a degree which has long been regarded as the *highest credential for practice* to be procured within the British dominions."

The impudence of the assertion contained in the first member of this sentence is only equalled by the boldness of that with which it concludes. By the regulations in force previous to 1833, in addition to the nine imperative courses, our authors state that there were *five* others, of which the candidate for a degree was required to attend only *two*, the selection being left to himself.

"These *optional* courses were, medical jurisprudence, clinical surgery, natural history, practical anatomy, and military surgery. The first three of these courses have been rendered imperative. Practical anatomy, while attendance on it is made imperative, has been *permitted*, under certain circumstances, to be taken *out* of the University, and military surgery has been withdrawn from the curriculum," &c.

Nothing can be conceived more absurd than these *optional* courses; and for such an anomaly in our systems of education the University of Edinburgh is indebted to the unwearied exertions of Dr. THOMPSON, who, finding it impossible to get his chair of military surgery inflicted on the student, contrived, as the best substitute which his fertile imagination could supply, to get that, along with the other four, clubbed together, two of which the student was compelled to pay for, and hence he calculated that *he* would thus secure two out of five victims for plunder. The circumstance that lectures on practical anatomy are *permitted* under certain restrictions to be taken *out* of the University, is worthy of the medical faculty; and it ought also to be stated, that the "military surgery" was no longer considered an *optional* class *after that nondescript chair was vacated by* Dr. THOMPSON.

The only remaining point worthy of comment relates to the examination of candidates for degrees.

The system of questioning the candidates in the Latin language is now abandoned, and for some time past the examinations have been conducted in English.

"This," observe our authors, "is certainly a *great* improvement, and, together with another, that of each professor now examining in *his own department*, has effected a most salutary change."

It appears from what our authors subsequently state, that until this great improvement took place, the examinations for an Edinburgh medical degree were mere farces. They were conducted in Latin, and each professor had his particular *routine* of questions, for which the student had to learn a corresponding *routine* of answers,—all which were *knocked* into him by a particular genus of beings called "grinders." After speaking of this deplorable system of examination, our authors observe:—

"It hence resulted that some students gave themselves freely up to amusement during the chief part of the time which should have been devoted to study, in the well-founded hope that *a few months* of GRINDING would make all right, and enable them to return to their friends with the dignity of Edinburgh Doctors."—(Page 12.)

It could scarcely have been expected that so severe but honest an exposure would be made by the medical faculty

themselves; it shows, from the fountain head, the extent to which chicanery and absurdity have been carried in the making of degrees in the north, and how, in truth, the downright open sale of them in other universities, is a much more *gentleman-like* or *high moral* mode of making *Doctors* than the wily trickery of the Edinburgh professors. In its palmy state the system was one of grinding, and professors and grinders divided the pay. But the professors were avaricious and wanted all the pay. They have legislated accordingly. Alas! the poor gulled public, which thinks that medicine in Edinburgh is a science, while, in fact, it is nothing but a trade.

The Edinburgh College of Surgeons has, in most respects, exhibited a praiseworthy example, and one which has materially elevated and supported its reputation. It admits none of its members who are teachers, to become examiners. Its examiners are chosen every year. The examinations comprise, therefore, no routine questions, and its system permits of no such useful persons as grinders of candidates for the diploma in surgery.

INTERCEPTED LETTER.

[THE PARLIAMENTARY COMMITTEE OF INQUIRY.]

DEAR DOCTOR SEYMOUR,—As the day is fast approaching when the committee will meet, it is full time that you should be distinctly aware of the *kind* of answers they will probably elicit from *me*, in order that you, as well as the other Fellows who are of my way of thought, and are duly influenced by my example, may be prepared to answer the interrogatories which the committee may think proper to put. Be well assured that unless a perfect understanding and harmony subsist among us, our overthrow will be complete, though at the same time I most firmly and sincerely believe, that by exposing as little as possible the abuses, and what some may consider even as the absurdities, of the College, and dwelling as much as possible on its many and numerous perfections, we may still be saved from ruin.

"It is expedient that I now take one subject after another, and consider it separately and distinctly, and it is also due to my own reputation and character, as the head of the profession, to write everything down, so that my opinions may not be garbled and misrepresented. My dear friend, it will be a solace in the evening of my days, for me to reflect that there exist undeniable proofs in my own writings, that I have been a zealous supporter of the rights, the honours, and the dignities of our ancient institution, for, to use the language I have, aptly, I think, employed in one of my orations, 'the retrospect of a well-spent life is a *cordial* of infinitely more efficacy than all the resources of the medical art!'

"When I am before the committee, I have made up my mind neither to be bullied, nor to allow any of those secret moral ties to be torn asunder which have bound all the Fellows so closely together. But I shall offer a hardy, stubborn, resistance to certain questions, and shall at all times abstain from committing myself by giving *opinions*. FREDERICK the GREAT (not my old friend FREDERICK, Duke of YORK) used justly to observe how dangerous it was for a man to commit himself by *writing*, and my esteemed friend, that great diplomatist, Prince TALLEYRAND, is said to have made the remark, that 'speech was given to man to conceal his thoughts.' Recollect that I have often told you that *you* talk too much.

"One of the principal points on which I anticipate that I shall be questioned and cross-questioned is this,—*In what does the superiority of the graduates of Oxford and Cambridge over those of other Universities consist?* I *may* be so interrogated as easily to give, with a little nicety, answers apparently satisfactory, or I may be puzzled and driven to the wall. I shall however, in my reply, dwell impressively on the decided preference which is derivable from the moral and intellectual trial which students undergo in our English Universities,—that moral discipline to which they are not subject in any other establishments. The student lives within the walls and under the very roof of our colleges, whereas at the Scotch universities they

roam about and do as they please. Hence the loose, dissipated, and profligate habits of Scotch graduates, compared with the high moral conduct which is so pre-eminent a feature in the character of *our* Fellows. Having studied two years at Edinburgh myself, I can speak positively and feelingly on this point, and those affectionate and kind friends who most care for me have again and again expressed their opinion that any disposition I ever showed to be in any way dissipated, could be traced to my unfortunate visit to the Scotch capital.

"Of course, my dear friend, you and I know well the *secret* habits of the students of our own universities, particularly those of Oxford; and the drinking, gambling, fornicating customs which are indulged in within their walls. But that must not be hinted at, far less *admitted*. In fact we must not be supposed to know of such things; and remember that we have no hold of the enlightened portion of the community so firm as that we obtain by means of the impression they have of the high moral tone and intellectual discipline of Oxford and Cambridge men. It will be highly proper, therefore, to dwell on the high-toned morality which gives superiority to the members of the English universities, in the minds of our Fellows; and so desirous must we appear to be of supporting the importance of the moral endowments of our graduates, that *I* shall assign this as the chief, and, indeed, the only tangible reason for not admitting licentiates, or, as Sir ASTLEY calls them, *licentious* men, into the college, until they have been on probation at least ten years, —by which we can have undeniable evidence of their moral nature. It was this, and this alone, which pointed out the necessity of the by-law.

"I do not think that the committee dare hint at any little misdeeds of individual Fellows. *Non mi ricordo* is an answer never to be forgotten on such occasions.

"I expect to be a good deal pressed about the causes of the non-admission of licensed physicians to the fellowship, after they have undergone ten years' probation, according to law, and *have not exhibited any disposition to vice*. To this I will candidly reply, that whenever I have seen any amongst them of extraordinary eminence or of pre-eminent distinction, I have always admitted them. You know that I intended making Dr. GEORGE PEARSON a Fellow, though a rough diamond he was, but he fortunately died before the ballot took place. You also know that I have nominated for this year Dr. WILSON PHILIP, and I could not have done it much sooner, as we have had him for only eleven years *on probation*, and God knows that at his time of life his morals are established, and have been proved as satisfactory as his numerous and important physiological experiments.

"But what will puzzle me most to explain satisfactorily is, those cases wherein graduates, not of English universities, have obtained the fellowship, without having undergone the moral probation of ten years, according to our by-law. The case of Sir CHARLES MANSFIELD CLARKE will, it has been hinted to me, be made a subject of inquiry. Now I will at once state, on this emergency, that he received his degree from the Archbishop of CANTERBURY, at my solicitation, but that his holiness would not *create* him unless he went before the college to show his competence. We must avoid all allusion to the examination of CLARKE, which there was no occasion for us to make any thing more than a mere farce, as we did, because we *knew* him to be an excellent physician, for he was in an excellent lucrative practice; and whilst he was a member of the College of Surgeons, none of us dared, without breaking our by-laws, to meet him in consultation. It will be difficult to give any thing like a plausible explanation for rescinding the by-law, whereby we compel licentiates to have passed at least two years at a university, CLARKE not having had any but a very common cockney education. But I must do the best I can for my friend at this pinch, and if he be himself examined before the committee, he does not want either for impudence or tongue to plead his own case.

"Some painful questions may, I am told, be put to me relative to Dr SOUTHEY's case, and also the reasons of our suspending by-laws for *his* admission into the Fellowship. His case was imperative. When Sir WILLIAM KNIGHTON became privy

purse to our ever-to-be-lamented sovereign GEORGE the FOURTH, and gave up his lucrative practice as an accoucheur, he was anxious to promote the worldly interests of his amiable friend, Dr. SOUTHEY, as they could not then interfere with his own. Sir WILLIAM had then great power behind the Throne, and he thus induced our venerable monarch to appoint Dr. SOUTHEY one of his royal physicians. Sir WILLIAM most vexatiously made the KING write to me a letter himself (for Sir WILLIAM had then great dexterity as well as great power), desiring that I should make Dr. SOUTHEY a Fellow. I was too old a courtier to hint at *difficulties*, and, indeed, I never refused doing anything my dear kind friend the KING wished. But when I produced my royal document at the College, the Fellows were all enraged! The KING never saw Dr. SOUTHEY but once, when Sir WILLIAM KNIGHTON took him down to Windsor, as he did Mr. BRODIE, to pay a *probationary visit*. He had not the least chance of being employed by his Majesty whilst I lived, my prescriptions being always much too palatable for any others to supersede them. I shall talk to the Committee very big of Dr. SOUTHEY, and declare him to be one of the most intelligent and able Fellows of the College.

"The case of the late Dr. LUKE may also be sifted, and here difficulties may arise. Dr. LUKE, after having practised as a subordinate apothecary in Devonshire, and made a handsome fortune, resided at the University of Edinburgh for two years, and there got his degree. We gave him our license to practise in London, but being an ambitious man he was determined to become a Fellow, and at a very advanced time of life went for that purpose to pass the necessary terms at Cambridge. As he had now got a lucrative practice in London, it became a matter of grave discussion among the Fellows how it would be possible to prevent him getting the Fellowship. This I at once accomplished by contriving a new by-law, framed to prevent any person becoming a Fellow who had practised as an apothecary, and getting that by-law put in force before Dr. LUKE's terms at Cambridge had expired. At this the Doctor was so sadly grieved and irritated, that I have often felt a pang of remorse at the conduct of the College on that occasion.

"Another point of inquiry with the Committee will be to find out what are the *advantages* of the Fellowship, and I will state boldly and roundly that I know of none beyond the opinion the world has of the superiority of those persons who, by possessing Oxford and Cambridge degrees, have undergone such a moral and intellectual discipline as is most likely to convert them into accomplished physicians. I will also declare that the Fellows have no privileges whatever that a Licentiate does not possess. This last is the most important point to establish, as, after all, it is the 'loaves and fishes' that are uppermost. These are what we have always used *our* endeavours to keep, and the Licentiates have desired to get.

"As to the medical education at the English universities, the less said about it the better. It is awkward to confess that professors of anatomy, &c., are high-church dignitaries, having most substantial livings; and as to a course of lectures on the practice of physic, I have known our professor, Dr. HEWITT, set off to lecture at Cambridge, carrying with him, on the top of a coach, a few stinking preparations from *St. George's Hospital*, by way of illustration, and not undertaking a complete course unless six hearers presented themselves, which of course never happened.

"I shall dwell long and forcibly on the unbounded importance of *preliminary education*, and state that such can only be acquired at Oxford and Cambridge. The student can find physic wherever it is to be had, afterwards. I know that there is an opportunity of undergoing moral discipline at our Universities, which the great body of men who come for a license have no proofs to give of having undergone.

"Talk over all that I have now written, with WARREN, MACMICHAEL, and TURNER, as their examinations will immediately follow mine. They must assume a high moral tone, and allow nothing to intimidate them. There are other points

which I must defer discussing until my next letter, so adieu.

London, March —, 1834.

P.S. Pray contradict any report which may reach you, of my having had anything to do with the Duke of Wellington's Latin speech. I have desired all my friends to contradict it flatly.

SECRECY OF THE POST-MORTEM EXAMINATIONS AT ST. BARTHOLOMEW'S.

To the Editor of The Lancet.

Sir,—A few words in your much-esteemed Journal, on the subject of post-mortem examinations at St. Barthomew's Hospital, may not be ill-timed at this period of the anatomical session. They may tend to open the eyes of those gentlemen who wish to commence their hospital attendance at the beginning of the next season, and show them how much knowledge has been obtained by those students who, at the commencement of this season, paid such large sums of money into the coffers of the gentlemen who form the medical board of that institution. Although not a pupil of the renowned Mr. Stanley, yet I have regularly attended Mr. Lawrence's lectures during the whole of the late course, and on my leaving the theatre have never failed to look at the board on which all operations and post-mortem examinations ought to be posted; yet, strange to say, *not one of the latter has ever been announced*, so that I have not been present at one during the whole seven months I have been a pupil at this hospital. Such is the secrecy with which these examinations are conducted, that it is a rare thing to find a pupil who has ever witnessed one of them. I am, Sir, yours, very respectfully,

A Surgical Pupil of St. Bartholomew's.

April 14th, 1834.

To the Editor of The Lancet.—Sir,—It does little honour to our physiology, that treatises should be written on the "Reversion of the Optic Image" by fanciful and absurd means, when the thing is before our eyes in the *crossing* and *curve* of the optic nerves,—the former reversing the image *horizontally*, the latter *vertically*. Truth is always simple and obvious, and I therefore will not offend your readers by details. Sincerely yours,

Alexander Walker.

ST. THOMAS'S HOSPITAL.

HYPERTROPHY OF THE LEFT VENTRICLE OF THE HEART.

John Sutherland, a retired officer, applied at this hospital, January 2nd, and begged to be admitted under the care of Dr. Elliotson, who had prescribed for him four or five months since, for symptoms similar to those under which he is now labouring, combined with œdema of the lower extremities. His age is 35, and he is of a debilitated constitution. He states that at twenty years of age he discontinued active service. Says he found much relief from the medicine prescribed for him by Dr. E. His present symptoms are, eccentric hypertrophy, violent impulse of the stroke of the heart, which beats over a larger space than natural; absence of sound; the cavity of the ventricle apparently much contracted; pulse small and weak, very irregular; complains of pain over the thoracic surface, increased by inspiration, and also of pain in the epigastric region; sickness; vomits after eating or drinking; conjunctivæ yellow; has no particular pain from pressure on the region of the liver; skin cold and dry; depression of strength and spirits; countenance anxious. Dr. Elliotson not being at the hospital at the time of his admission, one grain of the muriate of morphia, with three of aloes, was given him; from these remedies he said he always found benefit.

The next day, January 3rd, Dr. Elliotson saw him; ordered four ounces of wine daily; also *Sp. Æther.; Nit.* ʒ j in *Mist. Camph.*, ter die, and put him on a low diet.

Jan. 4. No sleep; has vomited three or four times since yesterday, and spits a quantity of black streaked fluid; takes no solid food; a mustard poultice has been applied to the epigastrium, from which at present he has obtained no benefit; the wine to be increased to six ounces, and to take a grain and a half of opium every night.

8th. Has continued much the same; pulse now imperceptible; greater anxiety of countenance; does not complain of any particular pain, though evidently sinking. Stimulants to be given as often as necessary.

9th. Has been, since yesterday, at times slightly delirious; had no sleep during the night; laborious breathing; bowels open since yesterday; alvine dejection very black and fetid. Has taken a little wine and sago.

3 p.m., Dyspnœa worse, pulse quite im-

perceptible. He was now seen by the apothecary, who ordered him to take immediately m xx of the tincture of opium, but before this was procured, he died.

Necrotomic examination 24 hours after death.

The cavity of the pleura on the left side contained nearly two pints of serous fluid, without flocculi floating therein. The left lung was contracted to nearly one third of its former size, and bound down by strong adhesions; there were also slight adhesions of the right pleura. Pericardium adherent to all parts of the heart; dilatation, with hypertrophy, of the left ventricle; on the inner side of the mitral valves there was a deposition of almost cartilaginous hardness, in the substance of which were small specks of bone. The aortic valves were thickened at their edges, and there was also bony deposition, not sufficient, however, to interfere with their action. Water, on being poured into the aorta, could not pass into the ventricle. The right side of the heart was healthy, with the exception of a very slight thickening of the tricuspid valve. Congestion and softening of the inner surface of the stomach. Liver mottled, harder than natural. Other viscera healthy.

HEPATITIS, SPLENITIS, CYSTITIS.

Symptoms of these diseases occurred in a sailor-boy, aged 16, of spare habit and sallow complexion, who stated that three months since, while on the coast of Africa, he was attacked with ague, and that the recovery was succeeded by ascites and anasarca of the lower extremities. He was admitted into this hospital under Dr. ELLIOTSON, December, 1833, with an enlargement of the liver and spleen, the latter being more distinctly felt when he rests on hands and knees. Abdomen swollen and tense, but no fluctuation; great pain and tenderness in hypochondriac and hypogastric regions; urine passed seldom, and in large quantities, the act being succeeded by great pain in the bladder and penis; urine turbid, deposits a thick ropy sediment, and is acid; bowels regular; tongue furred; pulse natural. Ordered three grains of calomel every eight hours, and some leeches to be applied both to the hypochondriac and the hypogastric regions. Gum water two ounces daily. Slops.

12th. Has been improving since the 8th; abdominal swelling decreased; tenderness of the affected parts subsided; no pain in passing his water, the appearance of which is now natural; mouth affected by the mercury; the pills omitted.

For the next three days he continued much the same; mouth still very sore. Half an ounce of the iodine ointment to be rubbed on the abdomen twice a day.

20th. The tenseness of the abdomen has subsided; the ointment has produced painful irritation of the abdomen, in consequence of which the lad appeared discontented, and walked out of the hospital of his own accord, apparently in good health, though the enlargement of the liver and spleen still existed.

HEMIPLEGIA.

On the 12th of December last, Robert Day, a plumber, aged 34, of apparently weak constitution, was admitted into Luke's ward under Dr. Roots. He stated that six weeks since he felt pain in the head, accompanied by giddiness, for which he was bled and blistered. The pain continued, and about a month afterwards he felt a numbness in the right arm, which soon extended to his face and side. On the next day the whole of this side became useless, and his speech was so much affected that he could scarcely articulate a word. At present he is much in the same state; he has, however, slight sensations in the affected side. His head for the last four or five days has been free from pain, though at times he has been in a state of delirium. Tongue drawn to the affected side, whitish; articulation very indistinct. Right tonsil enlarged and inflamed, and covered with thick mucus; mouth also sore. These latter symptoms were produced from the mercury he took before his admission. He states also that he has been bled. Bowels open; stools passed involuntarily; pulse 76, full and soft. He was put on a milk diet. A large blister was applied to the head and neck, and a gargle, composed of the chloride of soda, was ordered for his mouth and throat.

13. No change; bowels not open. *Emp. Canth. Collo.*; *Magn. Sulph.* ʒiss; *Tinct. Hyoscyami* ʒj; 6tis horis sumendus.

14. Bowels not open since yesterday; takes very little food: this morning he took one drop of croton oil, and had a common injection. 2 P. M. Has now passed a copious motion in bed; pulse 100, very small, bears no pressure; extremities cold. The mixture to be omitted, and five grains of the carbonate of ammonia to be given every four hours in camphor-mixture; hot bottles to the feet; beef tea lb.ij daily; arrow-root and sago.

From the 13th to the 17th he refused to take his medicine, and almost all food; all symptoms remaining much the same. Since he has recommenced them he has become warmer, and his pulse is

fuller. It is now (18th) moderately full, and bears little pressure; bowels open; stools and urine he passes in bed; remains quite sensible; has no pain in the head; nights restless. Iodine ointment to be rubbed on the head twice a day.

From this time to Jan. 8th he has been gradually improving; eats, drinks, and sleeps tolerably well; speaks much better. Bowels open. Has more power in the right leg; arm remains much the same. Meat daily, with half a pint of porter. Under this treatment he continued gradually to improve. The ointment after being used for some days, caused irritation of the scalp, when (for a day or two) it was discontinued. Some days he appeared more confused, and complained of pain in the head, for which blisters were applied, and the vesication was kept up with irritation for two or three days. In the course of three weeks he had sufficient power in his leg to be able to walk about with the aid of a stick. His general health became better, and he was able to retain his urine and feces. Thus he continued till the 19th of March, when he left the Hospital, the disease being much reduced, and his health greatly improved.

LONDON HOSPITAL.

COMPOUND FRACTURE OF TIBIA, AND SIMPLE FRACTURE OF FIBULA.

W. P., a ropemaker, ætat. 50, was admitted on the 30th January, under the care of Mr. Scott, with compound fracture of the left leg.

The seat of the fracture was a little below the middle of the leg, where there was a small wound of the integuments, through which the fractured portion of the tibia protruded. This bone was also fractured about two inches lower down. The fibula also was fractured. The account he gave of the accident, which occurred a short time previous to his admission, was, that while working on board a ship, standing on a ladder, the lower end slipped, and he fell with considerable violence to the bottom of the ship.

The portion of bone that protruded was easily reduced by means of moderate extension, and the ends of the bone were brought into apposition. The edges of the wound were retained in approximation by means of a suture and strips of adhesive plaster. The limb was then placed in the straight position in a fracture box, and spirit lotion was applied. There was considerable oozing of blood through the wound in the integuments, but it was restrained by a compress of lint. Was ordered to take the *Mistura Salin. Antimon.* ter die.

February 3. The patient appeared to be doing well until this day, when he complained of great pain in the limb, which was hot and swollen. The dressing and suture were removed, which allowed of the exit of a considerable quantity of offensive unhealthy matter. The lips of the wound have an unhealthy appearance, surrounded by erysipelatous inflammation, which extends for some distance: the pads were removed, and clean ones were applied.

4. Says he passed a very comfortable night; bowels open; tongue furred; pulse small and quick; has no appetite; says he is perfectly easy. The erysipelatous inflammation is extending up the thigh; discharge profuse and unhealthy. Mr. Scott to-day ordered the limb to be enveloped in a linseed-meal poultice, and the man to take the following medicine:—

℞. *Sp. Ammon. Comp.* ʒss;
Tinct. Opii gtt. x;
Mist. Camphoræ ʒiss. Ft. haustus 4tis horis sumendus. To have a pint of beef tea, 8 oz. of wine, and a pint of porter, daily.

7. Much the same as on the 4th; the discharge still continues profuse in quantity, and of the same unhealthy character; the leg is much swollen, hot, and painful. Ordered to-day by Mr. Scott to have 12 leeches applied to the neighbourhood of the wound.

11. Much the same as on the 7th. Ordered to discontinue the former medicine and take instead,

Quininæ Sulphat. gr. ii;
Tincturæ Cinchonæ C. ʒiss;
Tinct. Opii gtt. x. Ft. haust., ter die sumend. To have a pint of wine daily; continue the porter.

14. Complains of having had yesterday afternoon severe rigors, which lasted upwards of two hours; the discharge is lessened in quantity, and is of a more healthy character; appetite bad. To have four grains of quinine instead of two, as ordered on the 11th. To have a rump-steak daily if he can eat it; continue the wine and porter, which are to be increased if he can take them.

15. The rigors returned yesterday afternoon about three o'clock, and continued until nearly five, when his bowels became much relaxed, and profuse sweating followed. The rigors returned again about 11 o'clock this morning, and have been present nearly all day, alternating with flushings. The ulceration is extending

through the integuments; the discharge not quite so profuse, and of a more healthy character; his constitution is evidently giving way, pulse quick and irritable; appetite bad. What nourishment he takes is forced upon him by the nurse. He makes no complaint. On being asked how he feels, his reply invariably is "Quite nicely," which probably arises from his dread of losing the limb. To have two ounces of brandy, in addition to the wine and porter, and twenty drops of laudanum, while suffering from the rigors.

16. Passed a more tranquil night; bowels open; the rigors returned this morning; the discharge profuse, but of a healthy character; pulse small and quick; appetite bad; takes no food unless the nurse stands beside him at the time. The sinuses extend from the knee to the ankle.

17. The rigors have been very severe, and prevented his sleeping; bowels much relaxed; the discharge considerably lessened in quantity, but very offensive; the edge of the upper portion of the tibia is partly protruding through an ulcerated opening about an inch below the original wound; countenance much pinched, with an expression of great anxiety; eyes dull and sunk; pulse weak and tremulous; tongue dry; appetite none; is thirsty. To have four ounces of brandy in addition to the wine and porter, with any nourishment he can fancy.

18. Much the same as yesterday. Mr. Scott to-day proposed amputation to him, but he would not consent.

19. Passed a very restless night; was delirious, talking throughout the night in an incoherent manner; bowels not opened to-day; pulse small and weak; tongue fiery red at the edges and tip, furred in the centre. Amputation again proposed, but again refused.

It is needless to say more than that he continued to sink until five o'clock a.m. of the 23rd, when he died.

INJURY TO THE PELVIS.

W. K., a sawyer, ætat. 32, was admitted on the 5th of February, and placed in Gloucester ward, under the care of Mr. Luke, with injury to the pelvis, from the fall of a heavy piece of timber.

On being placed in bed, the pelvis was carefully examined. He complained of excruciating pain on attempting the slightest motion, or on pressing the groin. No pulsation could be felt in the course of the femoral artery, but pulsation was discernible in the posterior tibial. The temperature of the limb was lower than that of the opposite one. No fracture could be detected in the pelvis or femur. Pulse small, 112 beats per minute.

Mr. Luke ordered the limb to be enveloped in wool, from the foot half-way up the thigh, and Goulard's lotion to be applied warm to the groin; to have 20 drops of tincture of opium, and take the saline effervescing mixture. Has gonorrheal discharge from the urethra.

6. Passed a very restless night, having suffered great distress from almost constant vomiting. The swelling of the groin continues much as yesterday. The temperature of the limb is now the same as that of the other. In consequence of not having passed any urine since the accident, the catheter was introduced; when about five ounces of urine, of a dark colour, and apparently mixed with blood, were drawn off. Complains of great tenderness over the region of the pubis, for which ten leeches were applied. V. S. ad ℥xii. To take the following medicine.

℞ *Hydr. Submuriat.* gr. i.
Pulv. Opii gr. ¼, bis die.

Continue the saline effervescing mixture.

7. The sickness still continues very distressing; the tenderness of the abdomen is considerable; has passed about four ounces of dark-coloured urine, of a strong ammoniacal smell. The pulse is about 120, small and weak; the swelling of the groin is increased. The appearance of the blood drawn cannot be noted, as it was thrown away by the nurse. Repeat the leeches. Continue the medicines.

8. Passed a very restless night; vomiting still continues distressing; bowels open; tongue furred; complains of excruciating pain on the least attempt at motion; great increase of swelling and tenderness in the groin, shrinking from the slightest touch. No pulsation can be detected in the femoral artery, but in the posterior tibial it is quite distinct; the heat of the limb natural. On the catheter being introduced, only a small quantity of urine, of the same appearance as before noticed, was drawn off, staining the catheter black. Discontinue the calomel, and take only the saline effervescing mixture.

9. Passed a very restless night, vomiting almost continually; bowels open. At 2 p.m. he became delirious; and gradually sunk until seven o'clock in the evening, when he died.

Examination post mortem.—On opening the pelvis, there was found to be a fracture through the left pubis, the spiculæ of which had ruptured the coats of the bladder to the extent of nearly an inch; fracture of the sacrum, and separation of the bones at the sacro-iliac synchondrosis.

Extravasation of urine into the pelvis; peritoneum highly vascular. There was also a rupture of the inner coat of the crural artery, forming a valve, which, consequently, prevented the flow of blood through that vessel, the circulation being carried on by the collateral branches.

IRREGULARITIES AT THE LONDON HOSPITAL.—*To the Editor of* THE LANCET.—Sir,—I observe in THE LANCET of last week a paragraph concerning the irregularity of Messrs. Scott's and Luke's operations. I should particularly like to know, through the medium of your journal, why Mr. Andrews should be left out. Mr. Andrews' days for operating are generally either Mondays or Thursdays, and, on inquiring, I have no hesitation in saying, that it will be found that he was the origin of the present irregularity. My name, should it be necessary, shall be at your command. At present, I am,

CŒLIAC AXIS.

MR. KEY'S LECTURES.—*To the Editor of* THE LANCET.—Sir,—We feel much astonishment at being informed that Mr. Key does not intend including the subject of *fractures* in his present course of surgical lectures, Mr. Cooper having already delivered them to his anatomical pupils. By this strange proceeding, the greater number of his class,—which is almost wholly supplied from the *Webb Street School*,—will be entirely deprived of the opportunity of attending them. This is not the *only* subject Mr. Key has either *neglected* or *forgotten*, nothing having as yet been said of *polypi*, *diseases of the breast*, *scrofula*, *&c.* By inserting the above in your spirited and valuable journal, you will greatly oblige,

A PUPIL OF GUY'S.

April 23, 1834.

JACKSONIAN PRIZE.—A notice of the award of this prize was published by us last week, as we received it from a correspondent, since which the following paragraph has been forwarded to us from the Council of the College of Surgeons, London:—"*Royal College of Surgeons, in London.*—Jacksonian Prize.—The prize for the year 1833 has been adjudged to Mr. JOHN GREEN CROSSE, of Norwich, for a Dissertation on the Formation, Constituents, and Extraction of Urinary Calculus; and premiums of equal value have been adjudged to Mr. RICHARD RADFORD ROBINSON, of Cooper's Row, Trinity Square, London; and to Mr. GEORGE THOMPSON MORGAN, of Queen Street, Aberdeen, for dissertations on the same subject. EDMUND BELFOUR, Sec."

THE following conversation occurred within the walls of Guy's Hospital on Monday fortnight:—

Mr. K. (entering a ward, and calling one of his dressers). How is the patient in such a ward?

DRESSER. Dead, Sir.

Mr. K. How is the man in the next ward?

DRESSER. Dead, Sir.

Mr. K. Oh, very well! (*A pause.*) How is the patient in the other ward?

DRESSER. Dead, Sir.

Mr. K. Oh! How is the man up-stairs?

DRESSER. Dead, Sir.

Mr. K. Way, they're not *all* dead?

DRESSER. Yes, Sir, they are.

Mr. K. That's strange!

(SEPULCHRAL VOICE FROM BELOW. Not at all.)

CORRESPONDENTS.

The word *man* was misprinted for *woman* in the third notice (line 4) under the head "Correspondents" in our last No. A correspondent says,—"The dresser who should have taken in that day, entrusted the duty to another student, who, meeting a third student, one who had never yet bled a patient, offered to show him the way, with a 'd—n you, I'll show you how to bleed.' One of the two then scientifically punctured the unfortunate woman's radial artery."

We have received the newspaper from Bath, and the communications of *Mr. Lucas* and *Dr. Cotton* and many other gentlemen. To numerous correspondents we must reply next week.

The correspondent who promises that his communication "shall be the forerunner of many more," is requested to favour us simply with facts and to confidentially authenticate them with his name and address.

Mr. Ramsay, *Mr. H.* near Thirsk, *Mr. S.* Hereford. It is impossible that we can reply by private letters to questions on subjects connected with the state of medical law and practice.

ERRATUM.—In Mr. Davis's case of constipation, page 44, line 12, *for* "stomach" *read* rectum. Mr. Davis remarks in a note now before us,—"I have before injected large quantities of warm water, and have inflated the bowels (in the former case to the extent of some quarts), without success. My case I consider singular, and from the ease experienced in introducing the pipe so high without pain, and the successful result, I trust in other hands it will also prove an effectual method of preventing a horrible and frequent death."

The third signature to the petition of medical gentlemen of Montgomeryshire, page 121, should have been printed Wm. Slyman, not "Kyman."